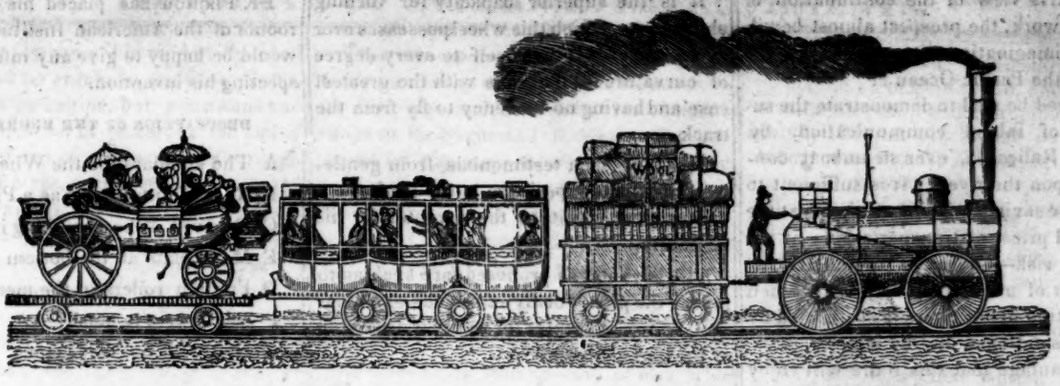

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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D. K MINOR, and GEORGE C. SCHAEFFER, } EDITORS AND PROPRIETORS.] SATURDAY, NOVEMBER 12, 1836. [VOLUME V.—No. 45.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, NOVEMBER 12, 1836.

Our items of foreign Scientific Intelligence are of unusual interest.

Among others we regret the death of Dr. Henry one of the most able chemists of our day.

For the American Railroad Journal.

MOUNT CARMEL AND ALTON RAILROAD.

A meeting of the Stockholders of the Mount Carmel and Alton Railroad Company, was holden at Carlyle, Clinton county, Illinois, on the 10th Oct. last. The commissioners from the respective counties, having declared that one thousand shares of the stock had been taken up, the meeting proceeded to elect the following gentlemen to fill the Board of Directors. Thos. S. Hinde and Scoby Stewart, Esqrs. of Wabash county; George Howes, Esqr. of Edwards county,—Samuel Leech and R. B. Slocumb, Esqrs. of Wayne county, M. M. Pace, Esq. of Marion county, Zophat Case, Esq. of Clinton county, B. F. Edwards and Calvin Reiley, Esq. of Madison county. At the first meeting of Directors, George Flower, Esq. was chosen President of the Board.

The utmost unanimity and harmony prevailed in the meeting; no jealousies arising from local interests were apparent; each county seemed to vie with the rest in a display of courtesy and liberality, and all evince sentiments of mutual respect and confidence. This may be hailed as an auspicious commencement of this great work of Internal Improvement, and it may confidently be anticipated that it will be prosecuted with a spirit and vigor, proportionate to its immense importance.

The organization of this company may be considered as the foundation stone of a Railroad, to connect the Ohio at Louisville, with the Mississippi at Alton, and St. Louis. At or near the meridian line it will intersect the central Railroad, running north and south from the junction of the Michigan canal with the Illinois river, to the mouth of the Ohio. Those beautiful, fertile, and healthy Prairies, intersected with belts of rich woodlands, hitherto overlooked and neglected, because remote from navigation; being traversed by this road, will be brought into immediate requisition, a Railroad being preferable to a navigable river; inasmuch as it affords equal facilities for the transportation of produce and merchandize without being to so great inconvenience and risk; to say nothing of the sickness that is almost uniformly experienced by those who locate themselves in the immediate vicinity of our navigable streams. It may also be remarked, that the want of timber, an objection commonly urged against the Prairie country, will be obviated by this road—for as distance may figuratively be said to be annihilated by railroad facilities—as the country is said to be brought into immediate connection with the city, so will timber be placed within reach of the settler in the centre of a Prairie, however isolated his location may be.

The general appearance of these extensive Prairies, lavishly embellished with all the beauties that nature has to display, and far exceeding the effect of any imitation that art, aided by unbounded wealth, has ever produced, has been already noticed by different writers, and sufficiently enlarged upon; but the exhilerating—the enchanting effect upon the spirits, and upon the imagination of the traveller, as he rides through them, cannot be described—it can only be experienced.

But the ultimate importance of this road should not be estimated merely by its effects upon the agriculture and commerce of the two flourishing States through which it will run, nor by the extensive commerce that is now carried on between the important cities upon the Ohio and Mississippi which it will connect. This road may be regarded as a branch of the Charleston and Cincinnati Railroad, forming a portion of the great highway, leading through the very centre of the United States; from the shores of the Atlantic, and even from those of Lake Erie to the Mississippi; crossing the Wabash at the foot of the Grand Rapids immediately below the mouth of white river, where the rapidly increasing town of Mount Carmel stands; and where the unlimited water power may be presumed of itself sufficient to afford a valuable portion of business for this road; diverging north and south in the centre of Illinois by the central Railroad, again communicating with the northeast, north and northwest, up the Illinois, Mississippi, and Missouri rivers, with the south, down the Mississippi; and extending its advantages to the vast and fertile regions west of that river.

As we contemplate the settlement and improvement of this State—of the State, and Territory of Missouri, and of the Territory of Oregon; so may we contemplate the endlessly increasing traffic that must be carried on upon this road! But if we take

a prospective view of the continuation of this great work, the prospect almost bewilders the imagination—it extends to the shores of the Pacific Ocean!!

Little need be said to demonstrate the superiority of inland communication, by means of Railroads, over steamboat conveyance upon the rivers; it is sufficient to point at the saving in point of time—at the diminished price of transportation—at the diminished risk—and more particularly at the number of months in every year, when the navigation of our rivers is obstructed by shoals, by sand-bars, and by ice.

The advantage that this route will enjoy over the northern route by way of the Lakes is equally apparent. The inconveniences arising from protracted winters, and from the dangers of the Lake navigation, are sufficiently attested by the preference given by New-York forwarding merchants to the southern route, by way of the Columbia Railroad and Pennsylvania canal.

The face of the country upon the greater part of the line that the road will take through this State, is peculiarly favorable to the construction of a Railroad, as upon no part of it can any serious difficulty be discovered. The same remark will apply to the greater part of the route through Indiana. It may indeed safely be asserted, that fewer difficulties present themselves upon the line of this road; than would be met with upon any route that can be pointed out, running the same number of miles through any other portion of the United States. H. R.

ALBION, October 24, 1836.

We lay before our readers the cut and description of the improved wheel for Railroad Cars invented by Dr. Plantou of Baltimore.

The simplicity of its arrangement and the advantages proposed to be gained therefrom are so obvious as hardly to require further explanation.

The intention of the inventor is to dispense with the axletree and thus remove the cause of a long train of accidents consequent upon the breaking of this part of the Car. By this means he considers that in adding to the safety of railroad transit he has removed one of the greatest objections to this mode of conveyance.

The inventor also considers that the situation of the center of gravity in relation to the point of support, is another advantage in the machine.

He also considers that the liability of a car to be thrown from the track is greatly diminished in this form of car, that the wheels have a tendency to counteract the effect of any obstacle, to throw them off, at the same time that their freedom of motion corrects the swinging motion produced by any inequality in the rail.

This leads us to another advantage claimed by the inventor, and one, too, of first importance.

It is the superior capacity for turning short curves which this wheel possesses over every other, adapting itself to every degree of curvature in the rails with the greatest ease and having no tendency to fly from the track.

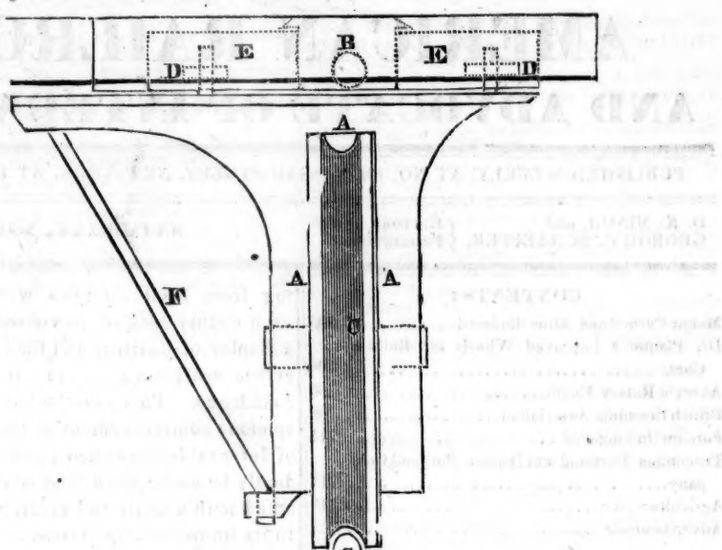
We have seen testimonials from gentlemen of much experience in the profession, giving great credit to the inventor for his ingenuity.

The advantages proposed, are such as to render the plan worthy of serious examination, as any guarantee for safety is deserving of the highest credit.

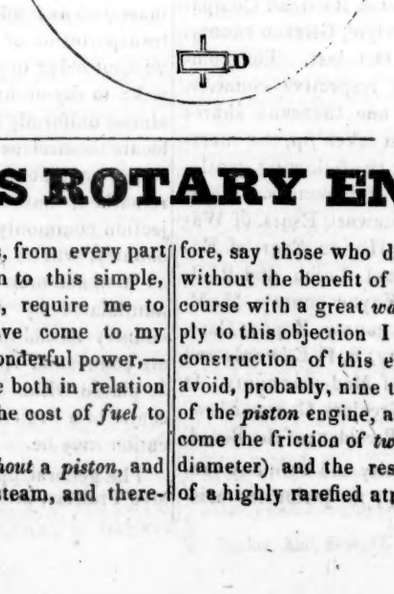
Dr. Plantou has placed his model in the rooms of the American Institute where he would be happy to give any information respecting his invention.

DESCRIPTION OF THE ENGRAVINGS.

A The standard for the Wheel.
B Neck of ditto acting as a Pivot.
C Grooved Wheel working in the fork A.
E Metal plate at the bottom of the Cars.
D Friction rollers in the metal Plate.
F Side braces to steady A.
G Rail with rounded edges.



Top view of the metal plate E.



AVERY'S ROTARY ENGINE.

The numerous inquiries, from every part of the country, in relation to this simple, yet extraordinary engine, require me to publish such facts as have come to my knowledge, testing its wonderful power,—and establishing its value both in relation to its *original cost*, and the cost of *fuel* to keep it in operation.

This engine works *without* a *piston*, and with a constant flow of steam, and therefore, say those who do *not* understand it, without the benefit of its *expansion* and of course with a great *waste* of steam. In reply to this objection I will observe that the construction of this engine is such as to avoid, probably, nine tenths of the friction of the *piston* engine, as it has only to overcome the friction of *two* journals (of 1¼ in. diameter) and the resistance to the *arms* of a highly rarefied atmosphere as they re

volve within the case. There is no *fly-wheel* to carry, and no crank to pass the center, as in the piston engine, but a *constant* and *perfect* application of power, at the *end of a Lever*, the end of which moves through the space of eight to twelve miles per minute; or to express it in a different manner, with a lever—the arms of the engine—30 inches in length, having apertures equal to $\frac{1}{10}$th of a square inch and working steam at 120lbs to the square inch, we have a *pressure* at the aperture, or at the end of the lever, equal to 12lbs; and this *pressure*, or *weight* revolves through the space of 8 to 12 miles in a minute, giving us power, less the friction, equal to that of a canon ball of 12lbs. projected at an equal velocity, and this power may, I have no doubt, be increased as the *length* of the arm, the size of the *aperture*, and the *pressure* of steam on the boiler shall be increased.

Having the power we have only to apply it to useful purposes, and this *has* been, and is *now* done in various ways, in different parts of the country.

This engine is peculiarly appropriate for all purposes which require rapid, and uniform motion, and it will be found highly economical both in its first cost and the *cost* of *fuel*.

One of its great advantages may be said to consist in the perfection, and high velocity, of its motion—as we have *in all* cases to geer *down*, instead of *up*, to the work—which may almost be said to give us the power of gravity, in addition to that of steam. Another important recommendation is its *simplicity*. It consists only of a shaft of 1 to $1\frac{1}{2}$ inches in diameter, about 30 inches in length, with two *bearings*, or journals, and at right angles to this shaft the *two arms*, or a flat bar of cast steel 5 feet in length and 4 inches in width, one inch thick in the centre and $\frac{3}{8}$ thick at the ends. The shaft passes through the centre of the arms, which are made fast to, and revolve with the shaft, which is also hollow at one end, or as far as the arms—receiving the steam through $1\frac{1}{4}$ inch pipe, from the Boiler, and passing it into the arms. The shaft passes at right angles through the centre of, and the arms revolve *within*, a cast iron case—which may be represented by two large earthen plates turned inside together and standing up edgewise. On the shaft at the end, opposite to where the steam is received, is a pulley 5 inches in diameter, from which the *band* passes to a large pulley on the line shaft and from which the *power* is applied to any machinery, with any velocity that may be required. A 25 horse engine consists of the shaft and arms, made of cast steel, weighing 65 or 70 lbs—and of a cast iron case weighing about five or six hundred lbs—of course there is very little to get out of order, or to require an *Engineer* to superintend, consequently the expense of *attendance* and *repairs* will be materially reduced, as well as those of *first cost* and *fuel*.

There is no power probably so perfect for *Cotton* and silk, spinning and weaving, or for *Flouring*, and Saw-mills, for machine shops or for Sugar and Rolling mills, and indeed for *any* purpose where a rapid and perfect motion is required as AVERY'S ROTARY ENGINE; and those who have used both, the Piston and the Rotary Engine, as well as those who have examined both with a view of using *one*, or the *other* as they should become satisfied of its superiority, or economy in fuel, have given a *decided preference to the Rotary*—and others who are now, and have been for many years, using the Piston Engine are satisfied of the economy, both in the cost of fuel and *Engine*, of the Rotary; and one such, at least, who is now using a first rate *Piston* Engine in a *saw-mill*, has ordered a *Rotary*, to be used in its stead, because he is satisfied that he can save the cost of the Engine out of *one years* fuel.

The expense of a Rotary Engine of *twenty* horse power *without* Boilers and gearing, is *six hundred* dollars at the shop—and with *Boilers, pumps, pipes, gearing and machinery* for a saw mill with *two saws* up to the cranks to which the saws are attached is from $2000, to $2200,—and such a mill will saw from *four to five* thousand feet pine to each saw, *every twelve* hours. A mill of this description on the St Clair river, in Michigan, *averaged over* 4000 *feet to a saw*, for *every day*, except Sundays, *from the middle of April to the 1st of August, without any other fuel than its slabs and saw dust*.

In reply to the objection raised by those who say it requires *more* steam than a piston engine, it is sufficient to say that *one hundred* lbs., of *Pea coal per hour* is all that is required to drive a *twenty horse* Engine—and that even a *less* quantity than that is used in a Saw mill in constant use in this city.

The following statement is from John Harris, Esq., the Engineer and Agent of a Goldmine at Mecklenburgh, North Carolina. Mr. Harris was much opposed to having it put up, as he had no confidence in it—but after using it for nearly a year he speaks of it as follows—

"The estimated capacity or power, of this Engine was considered by the maker to be equal to twenty horses, which power it has generally performed since it has been in full operation, so considered by myself as well as others employed at the establishment.

The Engine, since its erection, has been kept in constant operation, Sundays and accidents excepted.

When in full operation, as all the machinery has been for four months past, 3 cords of wood has been found sufficient to raise steam enough to carry the whole machinery 24 hours.

The quantity of water evaporated *per hour*, as near as I could ascertain, when in full operation, has been about 60 gallons, or *three* gallons to *each horse power*.

The Engine was first started about the beginning of Sept. 1835, and continued to work the pump and four mills only, until March, 1836, at which time the whole machinery was attached, making altogether nearly 10 months.

The cost of repairs has been very trifling. The whole expense of repairs, that could properly be said to belong to the engine during the whole time, will not exceed ten dollars.

With careful attention it is not liable to get out of order.

The cost compared with a Piston engine of equal power will not, I presume, much exceed one half that of the Piston engine.

If I were in want of another engine of about 20 horse power I would certainly prefer the Rotary to the Piston engine.

In conclusion sir, after answering your several questions, permit me to state that *in my opinion, the Rotary is preferable in many respects to the Piston Engine. It can be attended by persons of less skill, is less expensive in transportation, and less expensive in erection than engines generally of the piston kind.* I am sir, very respectfully, Yours' &c.

JOHN HARRIS.

The following letter is from gentlemen who have a Saw Mill in the town of Clay, Onondaga Co.

Clay, June 11, 1836.

GENTLEMEN.—We give it as our opinion from what knowledge we have of the Rotary Engine, that it is preferable to the Piston.

The slabs and saw dust during the summer will nearly keep the Mill in operation.

The average business of the Mill in sawing custom logs is about four thousand feet, and the Mill has cut over seven thousand feet out of a choice lot of logs.

J. FREEMAN,
E. L. SAWER,
J. W. SCHROEPPEL.

Messrs. E. LYNDS & SON. and
W. AVERY.

The following statement shows the work done by Isaac Pierce's *Mahogany* Sawmill at 91 Attorney Street, N. Y.

"The arms of the engine are 30 inches long from the centre of the shaft to the apertures, and the apertures are each the $\frac{1}{10}$ of a square inch.

"The following machines are all attached to, and operated by it, viz.:—

"1 upright saw with 30 inch stroke, or 15 inch crank.

"1 buzz saw, 24 inch, cutting a kerf of $\frac{5}{16}$ of an inch, with 22 to 2400 revolutions per minute.

"3-24 inch circular veneering saws.

"1-26 " " " "

"1-27 " " " " varying from 12 to 1500 revolutions per minute

"1-15 inch buz saw, with 1200 revolutions per minute, and

"1 whip saw for curves, with 9 inch sweep and 250 strokes per minute.

"1 grindstone.

"1 blower for the furnace.

"And the pump raising water 30 feet into a reservoir for its own use.

"The boiler now in use was made for a piston engine, and was intended for 15 horse power.

The following letter is written by Professor JAMES RENWICK of Columbia College, who has examined the engine and its performance.

To D. K. MINOR.—I have seen the engine upon Avery's principle which is employed in the Saw mill in Attorney street, and witnessed its operation. Its performance appears to be fairly set forth and not over estimated in the article from the Mechanics Magazine for April, page 244. In comparing this engine with those of other forms, it is obvious that there is a very great saving in the original cost of the apparatus working with equal power. In respect to the saving of fuel, this is also great, when compared with that expended in engines as they are most generally employed; and the quantity consumed does not exceed that used in the most advantageous application of the condensing engine, where the work performed, by a given quantity of coal, has been quadrupled. Compared with the ordinary high pressure engines, the fuel employed appears to be reduced in the proportion of one to three. I cannot but believe, that the engine of Avery will, in many cases, be found more economic and efficient, than any other form which has hitherto been used.

JAS. RENWICK.

Columbia College, 11th July, 1836.

☞ With the above statement of facts within my own knowledge, and the statement of those who have used them, and examined them with care, I ask the attention of those who are in want of Engines, to AVERY'S ROTARY ENGINE — and for more definite imformation refer them to Mr. Joseph Curtis, who is now ready to receive and execute orders at the "NOVELTY WORKS," N. Y.

D. K. MINOR, 132 Nassau-st.

November 1st, 1836.

We lay before our readers the proceedings of the British Scientific Association, convinced that they will be perused with no ordinary interest.

The account of the Clifton Suspension Bridge will be carefully considered as we are now about to make a similar attempt.

The experiments of Mr. Cross have *electrified* the Scientific world. His discoveries are moved abroad with an activity that designates them as the most curious of modern times.

The results of the labors of this Association are pregnant with instruction to us and our Lyceums. We shall dwell upon this on another occasion.

BRITISH SCIENTIFIC ASSOCIATION.

CLIFTON SUSPENSION BRIDGE.—As soon as the time for holding the meeting of the Association was definitively fixed, the Trustees and Committee for building this bridge determined to take advantage of so great and interesting an occasion to lay the first stone of this structure, and this (Saturday) was the day chosen for the ceremony. On account of the tide it was necessary to appoint so early an hour as eight o'clock. In the absence of the Marquis of Lansdowne, the President of the Association, the Marquis of Northampton, who had officiated for that nobleman, during the meeting, consented to lay this stone. The morning was brilliant, and at six o'clock persons began to assemble on the rocks, and down from which any prospect of what was going on could be obtained. The ferry-boats were also put in requisition, and a fine harvest they must have had. It had been appointed that the Trustees and Committee, and those gentlemen who intended forming a part of the procession, should meet at the ferry-house on the Leigh-wood side at 8 o'clock; and tickets were issued for the purpose of admitting those gentlemen within the enclosure. The scene at half-past seven was very pleasing. There were a great number of steam-vessels in Cumberland-basin, and they all covered their ropes with colors of every kind. The gentlemen who intended to see the stone deposited now arrived very quickly, and a procession was immediately formed under the direction of Captain Claxton, who is certainly the most active man in Bristol, for we have seen him acting, and well too, as grand manager of almost every thing. The procession was formed in the following order, first—an immense number of flags, then a band of music, the Architect carrying the inscribed-plate, the trowel, and the mallet, after which the Trustees, the Committee, and the general friends of the present undertaking.—The Marquis of Northampton now approached in a carriage with six grays. As we ascended the steep hill the scene was most animated. On the opposite bank every window was filled, and an immense crowd lined the shore. On arriving at the entrance to the wood his Lordship descended from his carriage, and followed the architect Mr. Brunel, Jr., being close behind him.—From the trees in every direction were hung innumerable flags, belonging to the different ships in the harbor, and these continued until we came to an opening in the wood, which gave us a glimpse of such a sight as could no where else be seen. The beautiful down and rocks of Clifton were before us, and wherever a human being could stand that place was occupied. We here descended a long flight of steps, made sufficiently wide to carry four persons abreast, until we came to the stone itself. Around and above this were platforms and galleries, formed in so excellent a manner as to accommodate with comfort and safety all those who had obtained tickets of admission. We now had the full view of that which we had before only seen imperfectly. The height was such that we had a most expansive view, and so far as the eye could reach on either side, the ground, so far as was practicable, was covered by human beings, and we should think that all the respectable portion of the inhabitants graced the scene with their presence. The river was also covered with boats, the rowers being dressed in their regatta dresses. A number of coins, comprising every coin now circulated, from the double sovereign to the farthing, were deposited in an aperture made for them by the Noble Marquis.—His Lordship then placed the inscription-plate under the stone; on this stone the following were given as the dimensions of the bridge:—

Distance between the two points of suspension,	- -	700 feet.
Length of suspended roadway,		630
Height of roadway,	- -	230
Total width of floor,	- -	34

His Lordship then covered this with mortar, and put the Act of Parliament for making the bridge, and a plate, being one of a breakfast set which Mr. Ivatt, of the Gloucester Hotel, had had manufactured for the public breakfast at his house this morning, having a representation of the bridge upon it, under the stone, which was then lowered to its ultimate place of destination. A trumpet was then blown, and the people on the Leigh-wood side gave three hearty cheers. The trumpet was blown again, and the cheers were responded from the opposite shore. A third blast, and the vessels below cheered. The Marquis then said, that it was his great pride and pleasure to come and lay the first stone of this magnificent edifice. In coming there he felt that the compliment had been paid not to him as an individual, but to the association of which he was now the humble representative, and he hoped the present moment would be the union of science and commerce. He would express a hope that that association might last as long as that edifice, and he trusted both would last to the end of the world. (Loud cheers.)—He would not conclude without proposing three cheers for Mr. Vick for his legacy; three cheers for Mr. Miles, for his gift of the stone; and three cheers for Mr. J. A. Gordon for his munificent donation. (Three cheers were given with great enthusiasm.) The procession then returned to Ivatt's Hotel, where a splendid breakfast was laid out, and where were met upwards of 300 friends to science, among whom we noticed the head of the association. Mr. Brunel did not cross the chasm on the iron bar as was anticipated, owing, as it was supposed, to the bar having been considerably twisted by its fall. A new bar is being made. Several votes of thanks were agreed to.

At the Meeting of the Association the same day, Professor Henslow and Mr. Davies Gilbert returned thanks to the various proprietors of manufactories who had so liberally thrown them open to the inspection of the members, the latter remarking that hitherto the prevalent and principal defect of such establishments was, that they were kept secret, whereas by the admission of men of science, he felt persuaded that suggestions would frequently be thrown out which might practically be acted upon with the best advantage. The Rev. Vernon Harcourt proposed, and Dr. Roget

seconded, a resolution of thanks to the various distinguished foreigners who had honored the Association by their presence on this occasion. Baron Charles Dupin, of the Academie des Science, in acknowledging the above, expressed his gratification at that cordial feeling which existed between Great Britain and France in scientific objects. During the period of war with this country, whenever Sir Joseph Banks made an application to the French Government for the restoration of any man of science or Fellow of the Royal Society, he was always liberated. At the height of the war, likewise, the medal of the Royal Society had been voted to M. Malesherbes, one of his countrymen. He had paid a visit to Bristol about 18 years ago, and congratulated the meeting on the improvements which since that time had taken place, and in those efforts which she was the first to undertake of establishing a steam communication with America. The resolution was likewise acknowledged by Professor Hare, of Philadelphia, and Dr. Simon.—Various other resolutions were proposed, and after three cheers had been given to the President, the meeting adjourned.—[Times.]

Bristol, Aug. 24.—At an early hour this morning the number of members who had entered their names was 1,287, and which, from the advanced period of the week, may be considered nearly the total number of those who will visit the Association on the present occasion. The sectional rooms were all well attended, and several contributions of great interest were made. The interest to many of the ceremony of laying the foundation of the suspension bridge at Clifton, on Saturday, will be diminished by an unfortunate accident which occurred to the iron bar this morning. This gigantic rod had been safely drawn across the immense chasm over the river; but whilst the workmen were engaged in placing the end in its position, it fell down into the bed of the river, obstructing the passage, and the whole being so much bent as to render its restoration for the present almost impossible. This accident was occasioned by the rope which was attached to it being cut through and giving way, and in its fall knocked down a scaffolding, by which one man was severely injured.

At the statistical section this morning, after a communication had been made by Mr. W. Creig on statistical desiderata, and on the deficiencies and errors of such reports in general, Dr. Lardner made some remarks on the effects of railroads in internal communications. The average of such as are in present operation, namely, Liverpool and Manchester, Newcastle and Hexham, and Dublin and Kingstown, showed an increase in the number of passengers of at least four to one. This great increase was to be attributed not so much to economy of expense, as of time and exemption from fatigue as was shown in one instance, in which the cost was actually greater than before. A coincidence was exhibited in the canal boats between Edinburgh and Glasgow, in which the speed attained was ten miles an hour, and the cost had been reduced to one quarter of that of other modes of conveyance, but in which, the journey lasting longer, the passengers were proportionably few. On the Liverpool and Manchester Railway the expence of conveyance to each passenger, in the supply and repair of engines, average one penny per mile, whilst an experienced engineer has made a contract for four years to supply and maintain the carriages on the London and Birmingham line for one farthing per mile for each passenger. On the line now in progress between this city and the metropolis it was proposed to employ three separate trains; that for heavy goods to proceed at night; one for the conveyance of mails and a select number of passengers, in which it was not impossible that a speed of 50 miles per hour might be maintained; and the third for ordinary conveyance, at a speed of about 30 miles. Dr. Lardner also mentioned a fact respecting the employment of railroads in America, that notwithstanding all the navigable resources of the Hudson, it was in contemplation to establish a line of railroad on the banks of that river. Mr. J. Taylor read a paper replete with interesting facts on the statistics of mining in England, and Europe generally.

The evening meeting held at the theatre, was equally well attended with that of the preceding Monday. The Rev. W. F. Coneybeare, V.P., was in the chair. A letter was read from Sir J. Hershell, addressed to Sir W. Hamilton, giving a detail of some of his observations on the nebulæ, since his arrival at the Cape of Good Hope, which communication was forwarded by him for the purpose of being read at the meeting. Since his arrival in the country he had discovered a large collection of nebulæ of all sorts, descriptions of which he had forwarded to Professor Schumacker for insertion in his annual Ephemeris. The general aspect of the southern region he described to be of a high degree of richness and brilliancy from Orion to Antinous, presenting a blaze of light, with, however, a few patches which were destitute of stars. It was impossible to view this zone with the surrounding stars without an impression that the milky way was but an *annulus*, and that our own system was placed in the most desolate part. The Magellanic clouds presented curious objects, appearing as if they differed from other celestial phenomena, in a different degree of condensation in the stars of which they were composed. The great nebula in Orion was much more bright than when seen in our own latitudes, and the planetary nebulæ were numerous and highly characteristic, five of them being as sharply terminated as any planetary bodies, and it was not until after he had submitted one to many careful examinations that he was convinced it was not a new discovery. The clearness of the climate was shown by the fact that in 43 days there were only three in which Venus was not seen in broad daylight by an ordinary observer. Dr. Apjohn next read an abstract of the papers that had been read in the morning at the section for chemistry, one of which, by Professor Daubeny, on the nature and origin of thermal springs, elicited a considerable discussion, the former giving it as his opinion that they were always produced by latent or dormant volcanic action, and adducing the geological characteristics of those in this vicinity in support of the theory, and likewise advancing views respecting the productions of subterranean heat from chemical changes below the surface of the earth. In reply to these observations, and in support of the ordinarily received views of central heat, Professor Philips gave several instances of investigations recently made on the subject at various depths, and with instruments provided for the purpose by the Association. In a mine at Newcastle, 280 yards below the surface, the external atmosphere averaging 47½ deg., the thermometer stood at 64 deg., being an augmentation of nearly 1 deg., for every fifteen yards, a proportionate average which in a variety of other cases was almost the same. In a mine at Manchester, 337 yards below the surface, the external atmosphere being 49, the thermometer stood at 62; in a salt mine, 112 feet deep, 52 deg., whilst on the surface it was 47; and in a mine near Bristol, within the last few days, 170 yards below the surface, the external atmosphere being 42 deg. it stood at 64 deg. Mr. Taylor in support of these views, gave a recent instance of examination in a pit, 1,740 yards deep, in which the temperature was 97 deg. At the conclusion of the discussion, the arrangements for the ensuing day were announced and the meeting adjourned until Friday.

Aug. 25.—The varied engagements which have occupied the attention of the members throughout the whole of the week do not appear in the slightest degree to have weakened their interest, as was displayed in the continued full attendance at the sectional meetings this morning. In consequence of a contemplated botanical excursion to-morrow—one to Portshead in a steamer provided gratuitously for the occasion—this section prolonged its sitting this afternoon, and terminated its proceedings for the present session.

At the statistical section an interesting communication was made by Prof. Forbes on the relative height, weight, and strength of the Belgian, English, Scotch, and Irish nations, the comparison being the least favorable to the former, and the most so to the latter. The experiments from which these deductions were made were conducted from those made by Professor Quetelet at the meeting of the Association in Cambridge, the average height of the Belgian was stated at 5 feet 7 $\frac{8}{10}$ inches; English, 5 feet 9 inches; Scotch, 5 feet 9 $\frac{8}{10}$ inches; and Irish, 5 feet 10 $\frac{1}{10}$ inches. [These proportions seems to us considerably exaggerated.] The strength of the Belgian was also less than that of the English by 50 lb.; in every case of experiment, 25 years being taken as the age of maturity. Baron C. Dupin whose name has so long been known in connection with English statistical inquiries, next exhibited two maps of this kingdom, in which the several counties were shaded according to the denstity of population and proportionate criminality. The deductions formed from his inquiries into

the latter were as follows:—He calculated six different degrees of density of population to 1,000 acres.—Firstly, 100 inhabitants to 1,000 acres; secondly, 218; thirdly, 466; fourthly, 555; fifthly, 1,100; and sixthly, which is in highly populated counties, such as Middlesex, 7,000 inhabitants to the 1,000 acres. In the first district, the proportion of offenders to the population would be 1 to 2,963; in the second, 1 to 1,427; in the third, 1 to 593; in the fourth, 1 to 550; in the fifth, 1 to 498; and in the sixth, 1 to 558. In Ireland the same proportionate regularity did not exist, as there society was not in such a state as to allow the laws to be fully developed; and although the population was more condensed there was less crime in the north than in the south, owing to the more industrious habits, the greater degree of education, and comfort of the inhabitants. Some curious comparisons were next given of the relative ages, of criminals in England and France, in which the proportion of juvenile offenders was much greater in this country.—Some curious facts were also stated respecting *the relative proportion of crime in the sexes of different ages*, which exhibited the following ratio. Before the age of 12, the proportion of males to females was 1,869 to 1,000; from 12 to 16—1,600 to 1,000; 16 to 21—1,560 to 1,000; 20 to 30—1,623 to 1,000; 30 to 40—2,400 to 1,000; 40 to 50—2,712 to 1,000; and 50 to 60—2,822 to 1,000, whilst above that age again it became less, being 2,267 to 1,000. In the different degrees of crime, likewise, averages had been made which were in favor of the female sex, the number in proportion being 2,836, to 10,000; assaults, 2,204; manslaughter, 890; robbery on the person, 800; and robbery attended with violence, 511. *The influence of instruction on the mass of the people* he considered to be a term which was often misapplied, as when moral it could not but have a good effect, but if physical it was alike hurtful to the bad character, as it was beneficial to the good. Some curious returns were also made, exhibiting the proportion of criminals at different ages in this country and France; in Great Britain, this being greater in the juvenile and less in the ages above maturity, which might be attributed to the operation of several causes.—Whilst in England a great proportion of the younger criminals were transported from the country to settlements where the majority remained for life, in France, after some years confinement and restriction, they were thrown again upon the community as professors of criminality. Another point was urged in favor of the morality of the youthful criminals of this country, though decidedly not so in favor of the parents, that many children being sent out by them to pilfer when young, returned to habits of honest industry when their age placed them without their control. The various facts elicited showed that a very favorable change had taken place in the late improvements of the English Criminal Law, by which many penalties were altered, and that of death was in many instances taken away. The proportion of convictions to acquittals had also latterly been greater, which demonstrated that the laws were administered with more propriety and greater discrimination. Thanks were voted to Baron Dupin by acclamation for his information.

The Geological Section has, as usual, been an object of atttracion to-day. Much was expected from a paper of Mr. Fox of Penzance, on the change of mineral substances by galvanic action, as results of long observation and experiment; and Mr. Fox produced an experiment, of materials coarsely put together but yesterday, in which, with sulphate of copper and sulphuric acid, he gave new characters to some lumps of metal by the galvanic arrangement. Dr. Buckland, the President, referred with exultation to Mr. Fox's apparatus, which consisted only of a blacking-pot, 1½d., a partition between the fluids of clay, and a pennyworth of sulphate of copper and sulphuric acid; and then, turning to a plain country person, he stated that he should now astonish the whole world by bringing forward the unparalled discovery made by him with a pail of water and a brick with a hole in it. He then handed to the table a Mr. Cross, a resident of the Quantock Hills, whose name is consecrated to future fame as the author of the greatest discoveries ever made in chemical and mineralogical science—discoveries which will create an entire revolution in the pursuits of science. Mr. Cross presented himself with evident embarrassment, and then stated that for many years he had been a devotee to experiments in electricity and galvanism. That he had generated galvanic action in hundreds of different ways, and with all sorts of materials. That he now discarded acids from his combinations as rubbish, and, to use his own expression, produced his most perfect results and mutations of the products of nature, with the clean material of water, combined with sufficient lime. The multitude of his combinations, and the months and years in which he left them to work, his disappointments, and often their "spiteful results," formed a most diverting narrative. But when he described his production of regular crystals, his quartz which scratches glass, and his germs of various metals from powdered stones, the bursts of applause rent the air. Many distinguished men of science expressed their delight with acclamations, and the President was the most rapturous in his gesticulations. It appeared that his happiest creations are made in the dark, and that the action of light disturbed the delicate means by which nature works under ground. He also stated, as a general fact, that the intensity of all electrical action is a maximum, or high degree, from 7 to 10 in the morning, and at a minimum from 7 to 10 in the evening, the one ten times greater than the other. It would be tedious to follow honest Cross any farther, since, in a few days, large numbers of the Association propose to visit him, to see his apparatus and the results. The distance is 42 miles, but this will be no obstacle to hundreds now in Bristol. Professor Sedgwick, an a foreigner present who spoke English admirably, had, it appeared, visited Cross, and their accounts increased the interest of his narrative, and confirmed the veracity of his statements. Seventeen years ago, the Professor visited him, on a geological ramble, and found electrical apparatus of an extent and variety which filled him with astonishment. Many of the wires, etc., extended twenty miles in length, and the terror of his machinations in the neighborhood has been, for years, a security for rabbits, birds, game, etc. Cross's announcements have eclipsed all other business of the day in the other sections, though the same activity has prevailed in all of them. There were some fine experiments on Electric Magnetism in the Philosophical Section, but all past electricity sinks in interest before the new modes of generation, and the results, by Cross.

In addition to that from Liverpool, a deputation from Norwich is in the city, in order to invite the association to pay a visit to that place next year, and, to give strength to its appeals, is accompanied by a Prebendary, who brings with him the cordial wishes and sympathy of the Venerable Diocesan. This, along with the various other matters, will be decided on Monday night.

The iron bar across the Avon has today been replaced in its position, but has been so much twisted in its fall as to render the anticipated flight across the river scarcely possible. Among those present were Mr. S. Rice and his son.—[Chronicle.]

A meeting, which was very numerously attended by members of the Association, was held this morning at the Theatre of the Institution in Park street, T. Wyse, Esq., M. P., in the chair, for the purpose of forming an educational section, which, although not connected with the Association, should hold its meetings at the same time and place as the latter. Resolutions were passed in favor of the proposal, and observations made in furtherance of the objects by the Rev. Dr. L. Carpenter, Rev. E. Stanleys, Dr. Jerrard (the Principal of Bristol College,) Dr. Taylor, etc. The committee was also formed, and it was decided that the first meeting should be held in Liverpool on the Saturday preceding the commencement of the next meeting of the British Association in that town.

The following is a list of the various grants of money, etc., for the advancement of particular branches and objects of science, which were awarded on Saturday, as also of the various recommendations made by the several sectional committees, and approved by the committee of record:—

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE:—£50 for the discussion of observations on the tides, at the disposal of J. W. Lubbock, Esq.—£150 for observations on the tides in the port of Bristol, to Rev. Mr. Whewell.—£70 for the deduction of the constants of lunar notation, under the direction of Sir T. Bris-

bane, Dr. Robinson, and Mr. Bailey.—£30 for hourly observations of the barometer and lock bull hygrometer. Mr. S. Harris.—£100 for the establishment of meteorological observations on a uniform plan, and experiments on subterranean temperatures, under the direction of the Committee of last year, reduced to Rev. Professor Powell, W. S. Harris, Colonel Sykes, and Professor Phillips.—£500 for the procurement of data depending on very accurate measurements of points situate in two straight lines at right angles to each other, for the exact determination of the question of the permanence or variability of the relative level of land and sea. Committee—Messrs. Greenhough, Lubbock, Mackenzie, Whewell, Sedgwick, Stevenson, Robinson, Bayley, Griffith, Colly, Cubitt, Portlock, and De la Beche.—£100 for experimental observations of the form of wave, as influenced by the effect of winds, and the effect of the form of a canal, and the manner in which the wave is produced. J. Robinson, Esq., Secretary; R. S. Edin, and Mr. J. J. Russel.—£500 for reductions of the observations in the Histoire Celeste, and vol. 9 Acad. des Sciences, 1789 and 90. Messrs. Lubbock, Airey, Baily, and Dr. Robinson.—£100 for experiments on vitrification. Drs Turner, Farraday, and Rev. V. Harcout.—£80 for the construction of a rock salt lens. Sir D. Brewster.

Section B.—Chemical and Mineralogical Science:—£50 for researches on the speficic gravity of gasses. Drs. Henry, C. Henry, and Dalton.—£15 for researches on the components of atmospheric air, Dr. Dalton.—£30 for researches on the quantity of heat developed in combustion and other chemical combinations.—£24 13s. for the publication of tables of chemical constants. Professor Johnston.—£60 for researches on the strength of iron made with hot and cold blasts. Messrs. Fairbairn and Hodgkinson.

Section C.—Geology and Geography:—£20 for experiments on the quantity of mud suspended in the waters of rivers. Rev. W. Yates, Messrs. De la Beche, and G. Rennie.—£30 for special researches on subterranean temperature and electricity. Mr. R. W. Fox.—£50 for researches on the nature and origin of peat mosses in Irland. Col. Coleby.

Section D—Zoology and Botany:—£25 for experimental observations on the growth of plants under glass, and excluded from the air, according to the plans of Mr. Ward. Professor Henslow.

Section E.—Medicine:—£50, renewed grant to the committees appointed to investigate the subject of the anatomical relation of veins and absorbents.—£50, renewal of a grant to the committees appointed to investigate the subject of the motions and sounds of the heart.—£25 for researches into the chemical constitution of the secreting organs. Drs. Roget, Hodgkins, and Turner, and G. O. Rees, Esq.—£25 for investigations on the phisiological influence of cold on man and animals in the Artic regions. Mr. B. King.—£25 renewed grant for the investigation of the effects of prisons on the animal economy. Drs. Roupell and Hodgkin.—£25 renewed grant for the investigation of the pathology of the brain and nervous system. Drs. O'Beirne, Green, Macdonald, Messrs. R. Carmichael, Adams, and O'Smith.—£25 for the investigation of the phisiology of the spinal nerves. Drs. Harpey and Broughton, and E. Cock, Esq.

Section F.—Statistics:—£50 for inquiries into the actual state of schools in England, considered merely as to numerical analysis. Colonel Sykes, and Messrs. Hallam and Porter.

Section G.—Mechanical Science:—£50 for an analysis of the reports of the duty of steam-engines in Cornwall.—Messrs. J. Taylor, G. Rennie, and Cubitt.

Reports in Science.—Section A.—Captain Sabine to communicate a continuation of his report on the magnetism of the earth.—Mr. Lubbock to report to the next meeting the result of the deliberations of a committee appointed to consider his proposition for the construction of a new empirical lunar table. The committee appointed being the Astronomer Royal, Professors Rigaud, Challis, and Sir W. Hamilton; F. W. Bailey, and J. W. Lubbock, Esqrs.

Section B.—Professor Johnston to report on the present state of knowledge of the chemical and physical properties of some peculiar bodies.

Section C.—J. Taylor, Esq., to report on the mineral riches of Great Britain and Ireland.

Section D.—Mr. Yarrell to report on the present state of knowledge of ichthyology.

Section E.—Rev. Mr. Taylor, of York, to report on the various methods of printing which have been proposed for the use of the blind.

Recommendations of Researches, etc.—Section A.—That Captain Sabine's magnetical observations on the west coast of Scotland form part of the next volume.—That application be made to the French Government for a copy of the best tide observations.

Section B.—That experiments be made on the effects of long continued heat upon different bodies.—That the various products escaping from the chimneys of foundries and manufactories be examined.

Section C.—That the attention of the members be called to the discovery of plants of any kind in the late rocks of any age, older than the coal formation.—[Times.]

BRITISH SCIENTIFIC ASSOCIATION.

Bristol, Aug. 29.—Although the majority of the members who have attended during the past week are now hurrying away from the scene of their activity, there were many remaining to-day to participate in the entertainments which had been got up expressly for them—the one being a grand horticultural show, provided by the Horticultural and Botanical Society; and the other a grand regatta, under the patronage of the mayor and corporation, in which the races continued from 11 o'clock in the morning until 7 in the evening. The former, which was of an interesting character, considering the time of year, was a very fashionable promenade, at which most of the botanical members were present; and the latter was made the opportunity of a grand gala day by the citizens at large. A steamer sailed this morning for Cornwall, with many geologists on board, who received an invitation from Sir. C. Lemon, Bart., to pass some time at his seat, which is in the vicinity of the places of meeting.

Foreign Intelligence.

It is with the most poignant regret, says the *Manchester Guardian*, that we announce the death of one of our fellow townsmen. Dr. Henry, whose name must be familiar to all our readers, died by his own hand yesterday, at his residence in Pendlebury, near this town. For some time past, we understand, he had been in a very indifferent state of health, and had occasionally labored under great nervous irratibility. His indisposition seems to have been considerably increased by the excitement consequent upon his attendance last week at the meeting of the British Scientific Association at Bristol, from which he returned with a considerable aggravation of the symptoms he had previously exhibited, and we understand that he suffered under an almost total privation of sleep, which appears to have finally overpowered his faculties. Yesterday (Friday) morning, about five o'clock, he left his bed and went into his dressing-room, and he was at length found in the private chapel, attached to his house, quite dead, having shot himself with a pistol, the report of which had not been heard by any of the family.—(Globe.)

Amongst the railways connected with the metropolis, the Birmingham, Bristol, and Thames Junction railroad is the only one that communicates directly with the western parts of London, branching off from the London and Birmingham railway, at about 5 miles N. W. of its terminus at Somer's Town. It will convey passengers and parcels by a direct and short cut to Kensington, Chelsea, Westminster, and all the West end. Also, to Lambett, Southwark, etc., whilst the heavy goods will be taken by barges to all the wharfs and warehouses on the Thames, from Chelsea to the London Docks, by means of the Kensington Canal, which has been purchased. The Act of Parliament is obtained, the direction is appointed and organised, the line of road is staked out, most of the lands purchased; and it is expected that such progress may be made in the works during the ensuing winter, as will enable the Directors to commence business simultaneously with the London and Birmingham

and Great Western Railway Companies. It is also proposed to apply to Parliament in the ensuing Session for an Act to extend the line of railway from the Hammersmith Road to Knightsbridge, near Hyde Park Corner, for which purpose surveys and estimates have been made, and the project has the concurrence of several of the principal proprietors on the line.—(Sun.)

M. de Gerstner. an engineer who recently visited England and Belgium with the view to study the iron railroad systems, he being charged to execute two lines of road from St. Petersburgh to the Royal Palaces in the environs, published on his return a report in four different languages to the number of 25,000 copies. He proposes to make an innovation in the construction of the steam-carriages, which consists in placing an apparatus in front of the engine, which will clear the rails in case they are obstructed by stones, snow, or ice.

At the works of R. Stephenson and Co., at Newcastle, there is now constructing a locomotive engine for the Emperor of Russia, for a railway six feet in width, and the wheels of which engine are six feet in diameter, and the speed is guaranteed to be 40 miles per hour. The engine is destined to travel between St. Petersburgh and the Emperor's country palace.—(Standard.)

A gentleman exhibited on Saturday a novel description of boat on the Serpentine. It consisted of oil cloth, and, upon being opened, assumed the form of a very beautiful boat. He crossed the water, and afterwards rowed up and down with astonishing rapidity.—(Herald.)

The subterranean passage for the Saint-Germain iron railroad under the village of the Batignolles, to the plain of Clichy, is complete, and the wagons now pass through it.

It is stated that a land proprietor of the province New Russia has sent, as a present to the Emperor Nicholas, an amethyst, found in the mines of Siberia, weighing 7 pouds, or 280 lbs. It is the largest that has ever been seen in Russia.

The great bell at Moscow, which has lain embedded in the earth for upwards of a century, has been lately raised, repaired, and placed on a pedestal, after receiving a fresh benediction in the presence of an immense concourse of people. It was founded by order of the Empress Anna Joannowa, and is the largest in the world, its diameter being 23 feet, its height 21 feet, and its weight 12,000 Russian *pouds*, or 480,000 lbs. French.

We long since stated that a commission had been sent to England and Scotland with a view to examine the superiority of the iron cannon manufactured there over the brass ones at present used in the French service. The report was, we learn, favorable, but the Government have resolved not to determine the question until after a course of experiments made under the direction of a commission appointed for that purpose. They have invited the Swedes and English to the trial, with nine cannon of different dimensions cast after patterns sent from France. The Belgian Government having judged that Belgian iron would well bear the competition with that of England and Sweden, has also entered the field as a competitor, and several cannons cast at Liege have been sent to La Fere, where they are to be proved.

Much curiosity has been excited in Oxford by repeated trials of an invention intended to regulate the speed of carriages when descending a hill, by means of which the coachman can instantaneously or progressively lock both the hind wheels. The apparatus was applied to a four horse stage, which was loaded with passengers, and, on ascending and descending a hill, was found to answer all the purposes intended. The inventer then proposed that the coach should be taken down the hill without the horses, and it was frequently stopped while proceeding at the rate of twelve miles an hour. Many practical gentlemen had ample proofs of the principle of the invention by having the coach lifted up, and the two hind wheels allowed to turn free on the axle, when it was found that a two-pound weight, placed on the extremity of the wheel, would gently bring it round, but when the first degree of retarding power was applied, it took a weight, so placed, of fifteen pounds to bring it gently round ; the second degree thirty-six pounds ; the third degree fifty-six pounds ; and the fourth degree three-quarters of a hundred ; but with this weight no one person was capable of moving either wheel on its axle. Mr. Pearson, organist, of this city, is the inventor.—(Oxford Herald.)

The annual meeting of the Polytechnic Society was held on Tuesday in the Great Hall, Falmouth. Valuable specimens, both of science and art, were exhibited at this meeting. Sir C. Lemon, the Member for the county, who had announced the day of the meeting at Bristol, and courteously offered hospitality to any of the members of the British Association, who might feel inclined to attend, he did not take the chair ; he insisted on that honor being bestowed on our revered fellow-townsman, Davies Gilbert, Esq , late President of the Royal Society. He also took the chair at the dinner, to which all the strangers in the town, and all the members of the learned societies in Edinburgh, Manchester, and London were invited. Amongst the visitors present we noticed Mr. Enys, of Pop man Castle ; Rev. Messrs. Buckland, Mackie, Stanley, Macauley, Punnett, and Cox ; Col. Sykes ; Professor Powell, of Oxford ; Dr. Fowler, of Salisbury ; Mr. Delabeche (the illustrious geologist) ; Mr. Fox (whose discoveries by the action of the voltaic battery, created so intense an interest at Bristol); Messrs Denton, Thackeray, Meadows, Hay, Maddock, Dickinson, Ellis, Doyle, Wilson, etc.—(Falmouth Herald.)

An eminent London firm of engineers has received orders for the execution of two steam-engines of 200 horse power, for the huge steam-vessel now building in Bristol for trans-Atlantic communication, and which, it is expected, will be completed in the course of the ensuing summer. That now executing at Liverpool for the same voyage will only contain one of 270 horse power —(Herald.)

One of the last analyses of the celebrated chemist, Vauquelin, proved the existence of a considerable portion of iodine in silver ore. This excited the astonishment of the chemists and mineralogists, who had no notion of this mineral being imbedded in ore, though they believed that it came from Mexico. M. Arago has applied to some young Mexican officers, who have lately arrived in Paris, for information on the subject, and has learnt, more particularly from M. Yniestra, that it is a well known fact in Mexico that the mineral in question comes from the mine of Albarados, in the mountains called Cetto-Temerosa, and that iodine is also found connected with the ore of carbonated lead ; and, moreover, it has been discovered in two plants which grow far from the sea, namely in an aloe, called in that country *Sebi'a*, of the genus *Magrey*, and in a species of barilla, which grows in the floating islands of the fresh water lakes near Mexico, which the inhabitants eat as a salad.

M. d'Averat has announced to the Geographical society, that a French traveller is on the point of setting off to explore the antiquities of Mexico.

Extract of a letter from Boulogne, dated Aug. 31 :—"For the last month this town has been the scene of continual amusements, in consequence of the number of visitors who daily resort here from England by the General Steam Navigation Company's vessels, who have reduced their fares from London to Calais and this port to five and four shillings, and on board of which they are sure of meeting with every accommodation, and the greatest civility, a rather rare article for travellers. All the hotels and lodging-houses will reap a good harvest this season, as they are well filled, and many private families who have hitherto never let out an apartment have now up at their windows "*Des jolies appartements a louer.*" Balls and private musical parties, or *converzasiones*, are given every evening by the most fashionable residents. Those of Mr. Hamilton, the British Consul, have been very fully attended. We have twice or thrice a-week a sailing or rowing match between the 'young sparks' to Calais and back, which is rather a novel scene to the French inhabitants as in this country they have no idea of regattas or rowing matches, aquatic sports not being their *forte*. The following is about the number of English over in France viz :—

Paris, Versailles, St. Cloud,

St. Germain. and environs - - -	20,000 to 5,000
Boulogne-sur-Mer and environs - - -	10,000 to 1,000
Calais, the Basse Ville, and environs - -	5,000 to 700
St Omer, Cassel, and environs - - -	1,300 to 1,10
Dunkerque, Bergues, and environs - -	1,500 to 2,0
Dieppe, Havre, Rouen,	

Caen, Tours, Marseilles, Bordeaux, etc. -	6,000 to 7,000
Total about - - - - -	54,500

Admitting that each person spends, on an average, 5s. per diem for board and lodging, etc., it would be £12,625, and the annual sum spent in this country by the English alone would be about £4,608,125. This does not include the number of Continental, tourists who pass annually through France to Italy, Switzerland, Germany, the Rhine, Belgium, and other parts, of which no official return is published.—(Post.)

ANTIQUITIES AND CURIOSITIES.—The collectors of relics will perhaps feel interested in the subjoined statement of the prices paid within the last few years for various objects of historical curiosty :—The *ivory-arm-chair*, presented by the city of Lubeck to Gustavus Vasa, was sold, in 1825, to the Swedish Chamberlain, M. Schmekel, for the sum of 58,000 florins.—The *prayer-book* used by King Charles I., when on the scaffold, was sold in London, in 1825, for 100 gnineas. The *coat* worn by Charles XII., at the battle of Pultawa, and which was preserved by Colonel Roson, who followed the King to Bender, was sold, in 1825, for the sum of 561,000 francs. A fragment of the coat worn by Louis XVI. at the alter, was announced in the catalogue of a sale in 1829, and would probably have fetched a very high price but it was withdrawn. The Abbe de Tersan paid a very high price for *a pair of white satin shoes* which had belonged to Louis XIV. A *tooth* of Sir Isaac Newton was sold in 1816 for the sum of £730. The Nobleman by whom it was purchased had it set in a ring, which he constantly wears. Apropos of teeth, it may be mentioned, that at the time when the bodies of Heloisa and Abelard were removed to the Petits-Augustins, an English gentleman offered 100,000 francs for one of Heloisa's teeth. At the sale of the library of Dr. Soarman, at Stockholm, in 1820, the *skull* of Descartes sold for a considerable sum. Voltaire's *cane* was some time ago sold in Paris for 500 francs. An *old wig*, which had belonged to Kant, the German philosopher, was sold, after his death in 1804, for 200 francs. A *waistcoat* belonging to J. J. Rousseau was sold for 950 francs, and his metal watch for 500 francs. In 1822, Sterne's *wig* was sold at public auction in London, for 200 guineas. In 1825, the *two pens* employed in signing the Treaty of Amiens were sold for £500. The *hat* worn by Napoleon at the battle of Eylau was sold in Paris, in 1835, for 1,920 francs. It was put up for sale at 500 francs, and there were thirty two bidders. There was at Pezenas an *arm chair*, which is said to have belonged to Moliere, and to which tradition has given the name of the *Fauteuil a la Moliere*. Its form bears evidence of its antiquity. When Moliere was living at Pezenas, he was accustomed every Saturday afternoon to repair to the shop of a barber, named Gely. This shop was the resort of all the idlers and gossips of the town. There politics were discussed, and the *historiette* of the day repeated from mouth to mouth. The large wooden arm-chair above alluded to stood in one corner of the shop, and it was a sort of observatory to Moliere, who, when seated in it, attentively watched all that was passing around him. This old chair is now about to be sold in Paris, and will, no doubt, soon fill a place in some collection of curiosities.—(Court Journal.)

The following is the greatest experiment in Ballooning that we recollect.

Not much is to be gained by increasing the sise of a balloon, but we are not among those who would discourage experiments in this line.

When skilfully conducted there must result some benefit to science.

THE STUPENDOUS BALLOON.

On no previous occasion in the annals of aerostation has public curiosity been so strongly excited as on that of the ascent of this "Great Leviathan of the Air," which took place yesterday afternoon from Vauxhall-gardens. Long before the doors were opened a large number of persons were in waiting for admission, while every avenue to the surrounding neighborhood poured forth its hundreds, anxious to catch a view of this unparalleled wonder. Of the size of this balloon our regular readers are already aware ; but for the benefit of those who may not recollect it we reprint the following from the prospectus issued on the occasion :—"The balloon is 157 feet in circumference ; and the extreme height of the whole, when inflated, and with the car attached, is 80 feet. It is formed of 2,000 yards of crimson and white silk, imported in a raw state from Italy expressly for the purpose. It contains 70,000 cubic feet of gas. As a matter of curiosity, it may be stated, that the inflated silk will sustain an atmospheric pressure of 20,433,600lbs., or 9,122 tons. The network which envelopes the silk is of hemp, and the car of basket-work ; the grapple, or anchor, is of wrought iron, and will be attached to an elastic Indian rubber cord, from the factory of Mr. Sievier. This will prevent in a great measure, any sudden jerk in stopping the balloon in rough weather, whereby so many accidents have occurred." We may add, that the silk is exceedingly thick in the fabric, and wove in a peculiar manner. The gores are united by a cement of a nature so tenacious as to prevent all chance of separation. On the doors being thrown open, the balloon was found to be already one-half inflated, the process, from the extraordinary size of the machine, having commenced as early as ten o'clock. About two a sudden change took place in the weather, and from that hour until past four it rained incessantly ; but the ardour of the lovers of aerostatics appeared to be nothing daunted by the untoward occurrence, for they flocked into the gardens regardless of the "pelting of the pitiless storm," many elegantly dressed women not even opening their parasols to shield them from the rain, for fear of obscuring their view of the balloon. By a little after two o'clock the balloon was nearly two-thirds filled, and raising its enormous crown, waving gracefully amidst the foilage of the surrounding trees, began to exhibit its extraordinary dimensions to the view of the spectators, who were loud and unanimous in their expressions of admiration at the magnificent spectacle which it presented. Shortly after four o'clock a favorable change appeared on the face of the heavens, at which time it became apparent the inflation was nearly completed, the balloon having assumed the form of an immense pear. About half-past four o'clock, the rain having subsided, preparations for the ascent were commenced ; they however, occupied nearly two hours, the power of the balloon several times raising a large party of the L division of police, who had hold of the netting, from the ground, and notwithstanding near 30 half hundred weights were also attached by ropes to the stupendous machine. The inflation was under the direction of Mr. Hutchinson. The peculiarly heavy state of the atmosphere produced a weight of condensed air upon the surface of the balloon of nearly half a ton, but so excellently had every thing been arranged, and so highly rarified was the gas, that the balloon was sufficiently buoyant to have taken up 20 people.

At five o'clock a large party of the nobility and gentry were admitted by tickets within the arena, where the inflation took place. Among them were the Duke and Duchess of Beaufort, Lord Worcester, Sir W. Abdy, Col. Stanhope, Pembroke-house; Lord H. Chichester, Captain Phillips, Lord Graham, Mr. Cosby, Lord Coventry, Rear-Admiral Sir Tremayne Rodd, Mr. R. Trever, Mr. J. J. Clarke, Mr. Rice, Captain Hall, Lord Palmerston, Lady Codrington, Eaton-square, and party ; Count d'Orsay, Lord Sunderland, Lord George Lennox, Lady Pellew, Mr. Joseph Jennings, King-street, Portman-square ; Mr. Collet, Capt. Beauford, Admiralty ; Mr. Wrottesley, Blackheath ; Mr. H. F. Downes, Muswell-hill ; Viscount Exmouth, George-street, Pall-mall, Mrs. Groves, Hyde-Park-terrace, Cumberland-gate ; Mrs. W. Snoxell, Earl and Countess of Charleville, Prince Lieven, Count Tobstoy, etc. Shortly afterwards the car, which on account of the weather had been stripped of its splendid purple velvet covering and gilded eagles' heads, was brought forward with only a covering of scarlet cloth, and attached to the ring to which the ropes of the netting had been previously fastened. Twenty-four bags of ballast, each weighing fourteen pounds, were put within it, as were also six carrier pigeons and a number of other articles. Notwithstanding some trifling delays, the work of inflation was complete by five, and preparations commenced for attaching the splendid car to the balloon ; some further delay occurred in this part of the operations, owing to the shower which had fallen previously having caused the netting by which the car was suspended to the balloon to contract, so that there was considerable difficulty in making the car hang level ; this, however, was at length effected, and the adventurous aeronauts, under the directions of Mr. Green, sen., the veteran aerial navigator, who on

this occasion made his 221st voyage, proceeded to take their seats in the car. It was then found that there were more candidates for the passage than there were berths in the ship, and the selection of his fellow-voyagers was, as a matter of course, left to the discretion of the commander, who issued his orders for the following persons to come on board—namely, Mrs. Green, Mr. E. Gye and Mr. Hughes, jun., sons of the proprietors of the gardens, Captain Currie, the gentleman who had so frequently been the companion of the unfortunate Mrs. Graham, a gentleman a friend of Lord Coventry, whose name was understood to be Williams, Mr. Green, jun. and Mr. Holland, who had so earnestly solicited a passage, and offered to pay so liberally for the accommodation, that his application became irresistible, and he was consequently entered on the ship's books, and took his station on the deck. The full complement of eight able-bodied was thus made up, when a voice was heard, exclaiming in urgent but at the same time tuneful accents, "Take me: I will not be left behind:" when it was discovered that Miss Green was the supplicant who thus urged her petition. Some objections were urged by those who had already been admitted on board; but Mr. Green, on discovering that it was his favorite niece who was thus excluded, declared that "Mary Ann" should accompany him. This had nearly bred a mutiny in the ship, when the Hon. Col. Stanhope, who was on the ground, called out "Five to one on Mary Ann." This opportune declaration of opinion had the desired effect, and the lady was immediately admitted to the honour of the sitting, a place, though not without difficulty, being found for her. This point settled, all that remained to be done was to try the power of the machine to perform the task assigned to it, when it was discovered that so predominant was its buoyancy that had the car been capacious enough to have afforded the accommodation, the balloon would, with ease, have sustained the burthen of several additional passengers; and previous to its being loosened from the ropes, by which it was apparently most reluctantly confined to our lower region, Mr. Green felt it prudent to permit a considerable quantity of gas to escape, and thus to reduce its power of ascension. All things thus prepared, the interest became intense; every spectator showed by his countenance the anxiety which he felt for the situation of the aeronauts. No praise can be too great for the coolness and presence of mind displayed by Mr. Green in this somewhat trying situation. He gave his directions in a manner which inspired the crew of his comparatively frail vessel with confidence in his management, and, as it were, anticipated their security from accidents and dangers. The ascent was most magnificent; directly the word was given to cast off the last rope by which the balloon was restrained, it shot with velocity from the earth, and mounted high in mid air, in the direction towards Tunbridge, shifting its course from east to south east. The shouts of the multitude, and the clang of the instruments of the military band which was stationed in the grounds, accompanied its flight. The aeronauts waved their hats and flags, and continued rapidly to rise. A grander sight can hardly be conceived. At least from 6,000, to 7,000 persons were present in the Gardens, in defiance of colds and rheumatism. This is certainly the most surprising ascent of a balloon that ever took place, whether the dimensions of the machine, the number of persons ascending, or the excellent manner in which every thing was arranged, be considered. It is the largest machine of the kind that has ever been constructed, and the only one, with a single exception, in which more than two or three persons have ventured to elevate themselves *in nubibus* from *terra firma*. The balloon in which the Duke of Chartres and three other individuals (two of whom were brothers, named Roberts) ascended, on the 15th of July, 1784, from the Park of St. Cloud, measured 55½ feet in length, and 34 in diameter; but this balloon is 157 feet in circumference, and between 70 and 80 in perpendicular height. Had it not been for the extreme wet, there is every reason for believing the ascent would have taken place much earlier than it did, and that the balloon would have started at four, the hour fixed for the purpose, instead of a quarter-past six. The balloon, with its nine passengars, descended near Cliffe, in Kent, at half-past seven. Mr. E. Gye, with Mr. Holland, immediately proceeded to Gravesend in a cart, and having despatched a man to the spot where the machine lay, came up to town in a post-chaise without delay, leaving Mr. Green, with the other passengers, in charge of the balloon. On the outside of the gardens, long before the hour appointed in the bills for the ascent, an immense number, amounting, we should suppose, to 50,000 persons, had collected. Millbank, the bridges, the parks, and almost every elevated spot throughout the metropolis, from which a view of the balloon, on its rising from the earth, could be obtained, were crowded by persons anxious to witness the novel spectacle of so large a number of persons traversing the aerial regions in a bark so fragile as a wicker-work car. The inflation is said to have cost the proprietors £70, though before the ascent Mr. Green found it necessary to let at least a fourth of it escape. When fully inflated, this stupendous machine had a graceful and magnificent appearance, to which its gay colors and splendid car added not a little.—(Globe.)

CORTLAND, AUGUST 1st. 1836.

To the Stockholders of the Tuscumbia, Courtland and Decatur Railroad Company.

GENTLEMEN:—The anxiously looked for Report of the Engineer has been received, and together with that of the Treasurer, is herewith transmitted.

The Engineer has made out a full and specific account of the cost of the Road, in his several items; the cost of the various property of the Company appertaining to the Road, and of our receipts and expenditures from the time that operations were first commenced, up to the present. It appears, that notwithstanding the numerous disappointments and misfortunes that have from time to time befallen the Company, the total amount of expenditures, by a sum a little upwards of twenty thousand dollars, or nearly five per cent upon our interest, for the entire period since the Road first began to be used. This, though a small profit, should, nevertheless, afford us much encouragement, when we take into consideration the adverse circumstances under which it has accrued. In the first instance, we were either disappointed in the receipt of Engines contracted for, or else when received, they were found to be unfit for the purpose for which they were intended. By this means we were, in the first place, hindered in the execution of our business, in the second, lost the confidence of the public, who, in consequence refused to give us employment, and, thirdly, were put to much actual expense in making our Engines suitable instruments for the purposes of the Company. In addition to those considerations, the Engineer assures us, upon the most satisfactory data, that could Locomotive power have been exclusively employed from the first, the expenditures of the Road up to the date of his Report, would have been diminished at last ten thousand dollars. Such diminution of expenditure would have raised the sum of profits to thirty thousand dollars, or near seven per cent upon the investment, up to this date. From all the information derived from the Reports of the different departments, we may safely predict the future prosperity of the company. We may rest assured that our expenditures will be continually decreasing while our receipts will be continually increasing. We are now fully prepared to fabricate for ourselves every species of machinery relating to the Road; having for our chief workman an English bred mechanic of the first reputation. The embankment of the Road, which is now the principal object of repairs, when consolidated by time, will have been rendered almost independent of repairs. The labor we employ must necessarily grow cheaper as laborers multiply and population becomes more dense. While the increase of population, productive labor, commerce, manufactures, agriculture, wealth and travel, must greatly advance the business and emoluments of the Road. Thus while time will operate progressively, to reduce expenditure, on the one hand, it will progressively enlarge our receipts upon the other. And there cannot exist a doubt, that the ratios of these two progressions will be sufficient, speedily, to ensure an income that ought to satisfy the desires of the Company.

It is a fortunate circumstance for the Company, that their improvement has been in advance of all schemes for similar improvement in this region of the U. States. It will, on this account, tend to give direction to subsequent improvement in the same region. There was much talk in South Carolina of connecting their great Western Railroad with this, and although the plan was eventually abandoned, yet it is worthy of remark and full of encouragement for us, that our comparatively small establishment, should have been a matter of grave deliberation, in determining the route of that stupendous High Way. A connexion however, will ultimately take place. A south-western branch must strike off from some point on the Charleston and Cincinnati Road, and will certainly have its origin on this side of the Mountains, as it is

not to be supposed that a company would incur the expense of cutting a second pass through the mountains, when one already existed. This branch will have its direction through the Tennessee Valley, and must either be connected with our Road, or take a parallel route, and come in competition with it. But as competition would operate injuriously on both contending interests, nothing is more evident, than that co-operation and coincidence would, on both sides, be preferred; indeed a different supposition would be preposterous in the extreme.

The Georgia Improvement which may be regarded as a matter already determined upon, will next claim our attention, as it will become directly tributary to ours. The road from Augusta to Athens is now under contract, and in the course of construction. From Athens it will *double* (to use a nautical term) the Southern extremity of the Alleghany Mountains, and terminate at a point on the Tennessee River a little below the Suck. The intermediate link of connexion between our road and this will assuredly be supplied, as soon as found to be called for. Indeed we already have a certainty of a road from Decatur to Huntsville, or some eligible point in the county of Madison.

The contemplated road which is to connect the City of Mobile with the navigable waters of the Tennessee River, becomes a third guarantee of our future prosperity; and I am happy in being able to assure the company upon the most satisfactory information, that it will be entirely in our power to supply the conditions, upon which this road would be made to intersect ours at a point a little to the east of Courtland.

These three stupendous improvements are to pour their trade and travel along the channel of our road, into the great valley of the Mississippi.

Let us suppose the Charleston and Cincinnati Railroad to be carried into execution; and also the projected roads in Virginia, running towards the North and towards the South, through the towns of Lynchburg and Abington, to the junction of the French Broad and Nolichucky rivers; and it is evident that the vast majority of the travel from the States of South and North Carolina, from Virginia, Maryland, Delaware and New-Jersey, and a great portion of that from Pennsylvania, New-York and the New-England States, with their great commercial and manufacturing cities, in short from the old States generally to the new, will direct its current along our own highway, and down the Tennessee river, and Nashville and New-Orleans Railroad into the great emporium of the West and Southwest.

The passage through the Aleghany and Cumberland mountains, will be in the nature of a great seaport—where the commercial and social intercourse of two connecting regions will be concentrated—and it appears to be our good fortune to occupy, as it were the focus inpoint of position.

The Georgia Road, too, will render heavy contributions, and that from Mobile will deliver its burdens at a central point, to pass along our Eastern or Western division, according to particular destination.

Let us then, continue to cherish those sanguine anticipations which we have all along indulged, and instead of becoming discouraged, let it be our chief concern to perfect and mature our work, and be prepared in the resources that may be put in requisition, for the construction of a *second track*, to meet the demands that may in future be made upon us.

Respectfully submitted,

BENJ. SHERROD, *President, of the Tuscumbia, Courtland and Decatur Railroad Company.*

Agrienlture, &c.

From the Farmers' Register.

THE "WATERLOO CÆSAREAN EVERGREEN CABBAGE"—ALIAS COW CABBAGE OF JERSEY.

The Farmer and Gardener of September 13, introduces an account of this cabbage (taken from the last No. of the Horticultural Register of Boston,) in the following manner:

"We have a few hundred of these plants growing at our little establishment; but as the season has been inauspicious, and they have not had a fair chance for luxuriant growth, we cannot say what may be the result of our experiment. We obtained the seed of Robert Sinclair, jr. at $5 a pound; those in England are, or were, held at $5 for 20 seed. The next season we shall take time by the forelock, and give the article a more fair and perfect trial. If it should prove by proper test to realize a moiety of what has been said of it, it will certainly produce a new era in agricultural pursuits; but as the venders of the seed of new things are not always the most scrupulous in pronouncing their eulogies on their virtues, time and actual cultivation are necessary in order that their capacities may be properly demonstrated.

In the more southern portions of our country, if this cabbage should prove as valuable as some of its encomiasts have stated it to be, it will, indeed, be a blessing. But of its properties after we have had time to form a correct practical opinion, we shall speak more fully."

Though the exaggerations of the English account given in the Horticultaral Register, are partly neutralized by the remarks of its conductor, still there is some danger that there may spring up and spread over our land a *cow cabbage mania*, such as at different times has been excited by millet, Cobbet's Russian turnips, and Gama Grass. For this reason, as well as for the amusement of our readers, we republish (from the August No. of Loudon's Gardener's Magazine,) this most impudent puff, and shameless yet very successful deception. The nostrums recommended by agricultural quacks and patent venders, like those of the medical quacks, are generally the more successful in proportion to the enormity of the pretension and falsehood.

"An individual in England having shown a specimen of this variety of what is properly a borecole, to Mr. Coke of Holkham, that gentleman expressed surprise at its size, &c. Advantage was taken of this to puff off, as the phrase is, this vegetable under a new name; viz. the Waterloo Cæsarean evergreen cow cabbage, and sell the seeds at the rate of a sovereign for a packet containing twenty seeds. The following is an extract from the advertisement:

'Patronised by His Majesty. Wonderful production of nature! Waterloo Cæsarean evergreen cow cabbage, of recent discovery, unequalled in affording the most interesting and desirable results to the farmer, grazier, and manufacturer. This singular and extraordinary species of cabbage, almost unknown in England till introduced by the persevering efforts of Mr. Fullard, three years since, grows from nine to twelve feet high, and from fifteen to twenty feet in circumference. Five of these stupendous cabbages, now raised to the greatest perfection in quality as well as size, have been repeatedly found, by proper management, an ample allowance of food for one hundred sheep, or ten cows per day; and the nutrition thence supplied by this delicious vegetable will (as experience has already abundantly demonstrated) speedily produce the most surprising improvement in the *growth* and *utility* of every description of cattle. As an evidence of the beneficial tendency of this cabbage, Mr. F. has the great pleasure and satisfaction of saying, that sheep fed upon it have been found to produce wool of the finest silken texture, twenty-five inches long; a circumstance which cannot fail immediately to claim the utmost attention and admiration: as such, the cultivator of these cabbages will not only realize pecuniary profit beyond any previous experience, but the manufacturer will also obtain a material superior to any heretofore produced by the most profitable speculation, the general and extensive demand for which must exceed all present calculation. The commerce of the country, as well as the interest and pleasure of the community at large, will likewise be greatly, if not incalculably, enhanced by the cultivation and use of this improved vegetable production. This Waterloo Cæsarean cow cabbage has been pronounced by the father of the agriculturists, whom, from his well known experience, we are all bound to believe, to be the greatest wonder that ever appeared in the vegetable kingdom. It was shown to that very highly esteemed and truly respectable gentleman, T. W. Coke, Esq., Holkham Hall, Norfolk, in October last, when he immediately said—'*Mr. Fullard, you told me, three years ago, agriculturists were only half way advanced in improvement: this cabbage makes me say I am bound to believe you. I do say it is the greatest wonder the earth ever produced.*' Mr. Coke subsequently introduced several *dukes* and other *noblemen*, to the number of nine, to view this great production, all of whom expressed their astonishment, and engaged a part of the seed for use this year (1836.) These cabbages, if designed for use in the winter season, can, for convenience, as well as advantage to the grower, be then removed from the fields, and will serve to make handsome serpentine walks in gardens; or they will form a most excellent avenue for winter across a field; or, by setting them singly, will make a ground, that has not a tree in it, a park for winter, and may be given to the stock in spring. To obviate skepticism, and to afford the highest satisfaction and confidence as to the perfect rectitude of the statements here given, agriculturists, graziers, and all who feel an interest in the species of produce, are respectfully requested to apply to Mr. ——, wholesale perfumer, No. ——, ——, London, who will, with pleasure, exhibit specimens of the cabbage, and also wool of sheep fed with this vegetable production. Mr. —— is the sole agent in London for the Waterloo Cæsarean cow cabbage seed. All purchasers of it are particularly desired to sow it at the proper season (which is in July,) as stated in the directions which accompany the parcels, price 20s. each. The plants of this seed, unlike other vegetable produce for cattle, *never fail*, either numerically or in quality. A part of this seed has been engaged by His Majesty, and forwarded to Norfolk Farm, near Windsor, to be sown this season; and the production is already likewise patronized by most of the royal family. The Duke of Wellington, and the following gentlemen, are a few only who have selected the seed

for cultivation this year:—the Right Hon. —— Dymock, Champion of England; Robert Leeds, Esq., Surrey; Thomas Back, Esq., Wellsbro'; Joseph Cowen, Esq., Bladenburn; Sir William Folk, Norfolk; R. Preston, Esq., Barrister, Lincoln's Inn; —— Allington, Esq., Little Barford, near St. Neots; Edward Lindsell, Esq., Broon, near Biggleswade; Henry Walker, Esq., Corn Exchange; R. Sutton, Esq., Royal Exchange; —— Jesse, Esq., Hampton Court; Henry Hills, Esq., Allebury; Henry Handley, Esq., M. P., Lincolnshire; —— Perkins, Esq., proprietor of Islington Market; William Shield, Esq., Lincolnshire; Thomas Hudson, Esq., York; —— Hern, Esq., Bury St. Edmonds; —— Watkin, Esq., Windsor. It is desirable to remember, that these sweet vegetables, when boiled, are remarkably tender, and in flavor resemble asparagus. For the table, or culinary purposes, they will ever be highly appreciated. They grow in the form of a cone, and from the thickness of their foliage, and being evergreen, they will be found ornamental to a garden. The plants, after two months' growth, (say in September,) require to be set out at the distance of two yards and a half from each other. They will grow on soil of moderate richness; but their greatest perfection will require soil of good quality. At any subsequent period to their being thus transplanted, they may be removed to any other place where convenience or taste may suggest. All letters from the country, requiring a packet of seed to be forwarded, must (to be attended to) contain a sovereign, or an order for the payment in London; and it is requested the name and address, where it is to be sent, be legibly written. Caution:—Any packet sold at a less price than a sovereign, either in town or country, cannot be genuine. Observe, also, upon each packet the circular seal, with this inscription: '——, No. ——.' It is important to observe, that none of the genuine cow cabbage seed will be sold after the month of July, for sowing this year, (1836.')

'*Further Particulars.*—In reference to the length of wool produced by sheep fed upon the new colossal vegetable, as described in this prospectus, the proprietor, Mr. Fullard, to prove the fact, has now a lamb-hog, one year old, to be *seen* at Mr. ——, No. ——, ——, where T. W. Coke, Esq., of Holkham Hall, paid a visit on Tuesday, the 14th instant; and, upon due examination of the said lamb-hog, he declared, in the presence of many witnesses, that he never before saw such a specimen of wool for *length* and *fine* quality. Mr. F. has already been awarded *nine* premiums, by the Agricultural Societies for the *superiority* of his sheep and other cattle.

'(Signed) ——, No. ——.'

"The noise made by Cobbett's Locust was nothing to this. We are informed, on what we consider undoubted authority, that from 30 to 40 sovereigns a day were taken at the perfumer's shop referred to, for several months. The London seedsmen are regularly supplied with similar cow cabbage seed from Jersey; which is sold by retail, by Mr. Carlwood, at 1s. per ounce; an ounce, as we are informed by Mr. Cormick, containing about 5000 seeds, which would, of course, produce the wholesale perfumer £250 in ready money. As several gentlemen have called upon, and written to us respecting this cabbage, as they did about the time the *Gardener's Magazine* commenced, respecting Cobbett's Locust (see *Arb. Brit.*, p. 616,) we have thought it worth while to state the above; adding, that, as we know that our advice was not taken in regard to the locust, we doubt if it has deterred those who applied to us from purchasing the Cæsarean cabbage. The truth seems to be, that there is a portion of mankind who have a love for the marvellous to such an extent, as to become a disease which will have its course. . . . . A correct estimate of the real merits of this cabbage, by Mr. Saunders, of Jersey, who supplies the London trade with their seeds, was published in the *Gardener's Magazine* in 1829, (vol. v., p. 440;) and it has also appeared in the *Encyclopædia of Agriculture*, 2d edit., p. 867."

ON THE HABITS OF THE HESSIAN FLY.

From the Farmers' Register.

CAMBRIDGE, EASTERN SHORE, MD., August 8th, 1836.

By the late disastrous ravages of the "Hessian Fly" throughout the whole wheat growing district of the United States, and the false notions entertained and circulated of the habits of this insect, giving astonishing currency to the most futile, yet strongly vouched remedies, for many years published, and yet publishing to the credulous community, lately in the "Baltimore American," formerly in the "American Farmer," and also in the "Farmer's Register," vol. 1., p. 351, (in which latter I am happy to see in a note appended, you dissent from the hypothesis to which I particularly allude,) I am led to offer a few remarks in opposition to the "prevalent and deleterious doctrine"—"the erroneous principles on which it is founded," and the consequently "erroneous prescription of the much-extolled specific."

An apology cannot be required for discussing one of the most interesting questions that is, or ever has been, before the agricultural community—"a preventive for the ravages of the Hessian Fly."

It is not that I am enabled to settle this mooted point of vital importance that I make this communication, but it is in the hope of *approximating* the *truth* by the detection of error; and it is thus, "*instar omnibus*," that man, with his finite capacity, must approach and investigate the mysterious modes and results of infinite wisdom. And for the small contribution I now offer to this point, if it meet your approbation, I ask the favor of a space of your "Farmers' Register," where zeal is sanctioned by example, and confidence promoted by liberality.

The author of the communication, lately in the "Baltimore American," signed "Maryland Agriculturist"—"others also to the same effect," remarks, "it" (the Hessian Fly) "is either generated in the grain of wheat, similar to the bug which infests the pea; or, the insect, when in its winged state, deposites an egg on the surface of the grain, when in the ear; and thus, when the wheat is sown and begins to vegitate, the egg vivifies, and the destructive worm is formed."

He adopts the latter opinion, and makes it the basis of his *remedy*.

His reasons for the opinion are, 1st. "That the insect releases itself by bursting the blade that covers it, when the head is forming, and assumes its winged state, and deposites its egg on the wheat when filling and coming to perfection."

2nd. "That with the aid of a microscope, the egg is discernible in the form of a glutinous matter."

Hence he deduces the remedy which he earnestly recommends to the notice of the farmer, viz: "to pass the seed, through brine or pickle, washing it well, and then roll it in lime."

By what means he does not inform us, he has arrived at the conclusion of this alternative, for the parental selection of a nidus; nor why he rejects the possibility of some other part of the plant being the chosen spot.

Indeed, the hypothesis adopted by this gentleman, and for many years, by others, so ardently, and no doubt so honestly pressed upon the agricultural community, rests upon a concatenated string of errors in fact, "false principles" and "false conclusions," and will lead, if practiced, to infallible disappointment.

It is not a fact, "that this insect releases itself 'by bursting the blade that covers it, when the *head* is *forming*, and then assumes the winged state' from which the writer infers the deposite of its eggs, when the *grain* is *filling*."

It is a fact, well known, I had supposed, to every wheat grower in the United States, who has noticed the habits of the Hessian Fly, that they have at least *two broods* in the year, the fall and the spring brood, and probably more; the *two* are well known, because of their effects upon a valuable crop: others are not generally known.

The first of the two is *deposited* (or, I will say, "*appears*,") as every one knows, on the young autumnal wheat, where it rests at the base of the blade, till the vegetable juices have nourished it, and the solar beams have matured it, which, in general, does not occur, at least in the climate of Maryland, until between the first and tenth of the following "*May*," when they are seen on, on the wing, over the wheat fields, though in a momentary period, perpetrating their appalling deeds of mischief, by that almost incredible multiplication and celerity of performance, which all the smaller and ephemeral insects are capable of. Their progression then, from the egg to the "*larva*," the "*chrysalid*," and the parent, or winged state, is more or less rapid, as the weather is favorable.

I would ask those numerous and respectable *entomologists*, and *farmers*, who contend thta the *grain* is the medium through which the parent transmits the *new progeny* into life, "what becomes of those whose destinies have fixed their first stage upon a period when the *grain* is *not formed?* sct. the "spring," or the "*May*" brood. Will they say that one brood adopts the *grain*, and another the *blade* for a nidus? This contrariety of habit in the same insect is seen no where. It would be repugnant to the "known laws of nature," to "analogy," and to the "character of *instinct*," which is notoriously *immutable*. Will they unite with us in the apostrophe—"*Natura! quam te colimus inviti quoque.*"

From the difficulty of accommodating

this "*May brood*," then, it would seem to be deducible, as a matter of necessity, "as they must be accommodated, and *a priori*" in a similar manner as the *fall brood*; and there is then no *grain* accommodation for them, there being no *grain formed at that time*; and yet they continue their procreation, "that the numerous and respectable entomologist, and farmers, who advocate the deposite *on* or *in* the *grain*, are "*quoad hoc*" in error; and their remedy *consequently* and *absolutely* erroneous, and wholly inefficacious.

It is certain that the deposite must be made upon a part of the plant already *substantial*, *visible*, and *tangible* at the time, but the "*May*" deposite finds no grain in this condition; and the dogma, "that it *must* be *on* or *in* the grain, *must* be abandoned as wholly untenable; and some other part of the plant must be sought as the selected spot of the deposite. I will presently show that this part is the blade.

2nd. The writer says, "if I had any doubts on this subject, they would be removed by the fact, that with the aid of a microscope the egg is discernible in the form of a glutinous matter."

What egg? I would ask. He has not attempted to show or to make it probable that the egg of the Hessian Fly has ever been seen on the grain of wheat, or on any other grain. If it can be shown that the grain was *ever* its resort, then it will be conceded, that it *always was* and *always will* be its resort; if the blade, the same: *reason* may be variable, but *instinct* never changes—the "*curculio*" will take his *fruit*, the "*aphis*" his *leaf*—they will perish rather than violate the laws of their nature, their physical and innate character. The eggs seen may have been the eggs of other insects. I have for some years observed a small, gaunt blue fly, very similar to the house fly, but much smaller, operating upon the head of wheat when neerly ripe, and apparently depositing eggs. I have found upon these heads, afterwards examined, and within the capsule, small larvæ which had consumed a portion of the grain. These are, possibly, from the fly the northern States are complaining of; and the eggs the gentleman has seen on the grain may have proceeded from the same source.—They have never appeared here in sufficient numbers to excite alarm, and they certainly are not the product of the Hessian Fly. Having already shown that the head, or grain of the wheat cannot possibly be the place of deposite for the Hessian Fly, I will proceed to verify my promise in a manner which I hope will be satisfactory to make it conclusively certain, that the blade of the plant is the place of deposite for the egg. I shall annex the authority, because thereby a responsibility is offered; and consequently an additional sanction given to the verity of the facts. This is the more necessary, because of the importance of all facts, regarding this important subject matter; and especially such as may preserve the farmer from a fallacious confidence in a proposed remedy, which must inevitably disappoint his hopes, lull him into false security, and possibly suspend his further inquiries into a subject, whose vital importance requires incessant and united prosecution.

On the seventh day of "*May*" last, (a warm day, so noted on my agricultural diary,) I observed in an outer corner of one of my wheat fields, a cloud of insects, on the wing, swarming like bees, over a space of a few acres of the young wheat. Attracted by their dense and glittering appearance, increased, no doubt, by the bright solar rays reflected from them, I rode up to the swarm, whose elevation reached from the ground to about fifteen feet. I caught several, and found them to be the Hessian Fly. On that day week, (also a warm and bright day, the intervening days had been generally, cool,) I took a microscope to the field, and pulling up several bunches of the wheat within the sphere of their flight, I discovered on many of the blades of *every* bunch, ane on their upper surface, and a few inches from their insertion into the stem, agglutinated eggs, and larvæ invisible to the naked eye until the point was indicated by the instrument, when they might be seen in different stages of forwardness or progression to maturity: some *white*, in which no insect would be discerned upon breaking them, some *yellow*, in which insects were found, and others, from which they were recently released, and lying at the mouth of the shell, yet motionless, apparently, and with their heads turned downwards, as if to make their way as soon as they could move to the base of the blade, at which, finally, the too visible fattened, and grown larvæ, and chrysalid, give woful evidences of the source of their life and nutrition, and of the decline and death of the great object of our care and attention.

Having made these observations, I extended my researches through the apparent sphere of their operations, and found it infested: these few acres became entirely naked; and it is remarkable that no other part of the field afforded any vestige, *then* or *afterwards*, of the fly. Upon the remainder, I grew a heavy crop of straw—the grain was destroyed by the general, and subsequently disastrous scab. Many of the chrysalids I have brought to maturity, leaving no doubt of the identity of parent and offspring.

From the whole premises—"from facts"—"from reason"—from "analogy" it is clear, that the leaf of the plant, and not the head or grain is the *fit* and *actual* nidus of the Hessian Fly—it is *there* that it is deposited, hatched and matured; and probably in several successive generations from the first suitable stage of the autumnal wheat, until, by its growth it is rendered too coarse for the functions of the tender offspring, when, no doubt, they renew their deposites, perhaps sparsely, on other tender plants, their next preferences, till their favorite growth of the coming autumn, shall complete the cycle.

The general character of the instinctive faculty, in other, insects better known, for the preservation of their broods, under the influence of which, they seek a nidus, in or near which, their progeny, when hatched, may be nourished—the fact, never I believe denied, that the larvæ of this fly has always been found at or near the base of the *leaf*, and never *on* or *in* the *grain*, or the *head*—the fact, that the grain or head does not exist at the time of the "*May*" deposite—the fact, that the larvæ of this fly does not consume any part of the grain or head, nor leave any trace of even a transcient existence in that portion of the plant—the fact, that if the egg were deposited there, the grain, when thrashed, undergoing its necessary heat, would, "as with the moth" or wheat weevil, vivify its *incumbent*, occupying so delicate a shell, which is alleged by these theorists to be afterwards brought to life by a *less degree* of *heat*, in the earth, after the cool season of seed time—the fact, that if deposited and hatched *on* or *in* the grain, it must in its tender larvæ stage feed *there* or perish, and the fact, that it does not feed *there* and does not perish; all these facts undeniable, together with those stated, as coming under my late observation, can leave no reasonable doubt, that the place of deposite for the egg of the Hessian Fly, is the *leaf*—and *not* the *grain* or *head*, and demonstrate the absolute futility of the brining and liming remedy, so confidently and earnestly relied on, and recommended for many years; and to the present moment reiterated with ejaculations of surprise, "that so simple and infallible a remedy, (see Farmers' Register, vol. I.,) should not be generally circulated and adopted for the good of mankind."

Finally, I may remark, that I used this process of brining and liming for three years, not for the "fly," but for the smut, (*le charbon*,) a stinking, contagious pest, very different from the black head, (*la nielle*,) which latter is, with us, generally and improperly called smut: of the former, we have had but little: yet, for a few years, by some unknown cause, it was introduced among my wheat. I found this remedy unavailing also for this disease; and my crops were not relieved until I purchased a new stock of seed wheat and scoured my granaries. In one of these years, it happened, that my crops, thus treated, suffered as much, perhaps more, than any previous season: and from these experiments, (which were fully and faithfully executed, and on a large scale, because I entertained sanguine hopes of success,) I am under the fullest conviction, that the germinative principles is enfeebled by the process, and the plant rendered thereby an easier prey to the fly, or any other invading insect.*

I have, my dear sir, far exceeded the

* From our experience of brining and liming seed wheat, to prevent the smut, we have arrived at a different opinion from Dr. Muse—as we have never known that disease to occur after the preventive process had been "fully and faithfully executed." Still we admit that such negative proofs, are not conclusive, as possibly some unknown causes may have checked or prevented the disease. In another opinion expressed above, we are much disposed to concur—that is, that the process of brining and liming, (at least as usually, and perhaps carelessly, executed,) serves to weaken the germinating power of the seed, and thereby enfeebles the plants. Ed. Far. Reg.

limits of my design in this communication; but really, the question of a remedy for the Hessian Fly is so interesting—the detection of a prevalent error in respect to it so essential to its true solution—the chief remedy offered is so confidently pressed upon the public, and so palpably worse than nothing, inasmuch as it holds out false views, and obscures the path of research, coming too under the sanction of many and highly respectable sources, from New-York to Virginia, inclusive—these considerations make my apology for the zeal which I have evinced, and the freedom which has been taken, by

Yours respectfully,
JOSEPH E. MUSE.

From the Portland Advertiser.

COTTON MANUFACTURES.

If the manufacture of cotton is a profitable business, and that it is so, we think those who have attended to facts and have read our former numbers cannot doubt; we believe it to be equally clear, that it can in no part of the United State be conducted with a prospect of more favorable results than in Maine. That locality has something to do with the result must be obvious to the most casual observer, and we have briefly adverted to some of the grounds of it on a former occasion. We have recently fallen in with some calculations on this subject which set the matter in a still clearer light. In a recent number of Blackwood's Magazine a writer has made a comparison between the expenses of spinning in England and France, by which it appears that the cost of spinning half a kilogramme of cotton which is 17½ ounces, into yarn No. 30 to 40 in Manchester, exclusive of the raw material, is 13 cents, while at Mulhausen a considerable manufacturing town in France, it is 20 cents. This expense is made up of wages, fuel, interest of capital, wear and tear, charges of freight, &c., steam being the moving power. In Zurich the principal manufacturing town in Switzerland where the moving power is *water*, the expense is less than it is in England, although in the latter country the interest and general charges are much lower than in France or Switzerland. In 1834, M. Kaechlin a large manufacturer and member of the French Chamber of Deputies, estimated the cost of spinning No. 30 to 35 yarn at 14 cents a kilogramme at Mulhausen, of which fuel, comprising lighting, constituted rather more than one seventh; while at Zurich where the machinery is moved by water, that important is item wholly saved, as admitted by the same distinguished operator. It is evident however, that in his calculation he was looking only to the moving power, for in every establishment, fuel for heating is a necessary charge.

In this country although wages and interest upon the capital are higher than in England or France, yet the cheapness of our water power and the much lower price of subsistence, taxes, and of the raw material, nearly equalizes the general expense, and enables us, especially in coarser goods, to undersell the foreign manufacturer. A writer in the American Encyclopedia, after enumerating the advantages possessed by this country says, "it would seem not improbable that this country will be the future source of supply, in coarse cottons for foreign markets."

But still notwithstanding the great advantages of manufacturing in our own country, and notwithstanding the encouragement held out by a protective tariff, the manufacture of cotton is carried on to a vastly greater extent both in France and England than with us.

In England in 1834, the number of spindles were 9,333,000, in France 3½ millions, while in the United States there were but 1¾ millions. And in the same year there were *imported into this country* cotton goods from England to the value of $8,200,000, from France $1,100,000 and from Germany $300,000, making a total of $9,600,000. This large sum expended among ourselves instead of being sent out of the country, might have given employment to a vast number of persons and been the source of wealth to many more. The fact also proves that there is abundant room for the profitable employment of a greater amount of capital in this important branch of business; for with our high protective duty, if the foreign manufacturer can afford to send his fabrics to this market, we, saving the duty both upon the raw material and upon the cloths, can certainly safely increase the quantity of our manufactures and afford to undersell him in our own markets. Besides these advantages our *exports* of cotton fabrics have been gradually increasing from 1826 when they amounted to but little over one million of dollars, until the present time.

In 1833 the exports amounted to $2,321,000, of which $1,900,000 were to South America and Mexico, $120,000 to India and Africa, $215,000 to China, and $86,000 to the West Indies. Now with all the advantages of our country for manufacturing, with the opening of these and other markets for our goods, with the increasing use and demand in our own country and abroad, and the increasing popularity of American manufactures, can any doubt remain about the st bility and the profit of cotton manufactures in the United States, and especially in New-England. Let it be remembered that we haveconfined ourselves principally to the manufacture of *coarse goods*, but as the business advances, the higher and more valuable qualities of fabrics will become the subject of attention, by which new employment will be given to skill and ingenuity, and new markets opened to the manufactures of our enterprising and indefatigable countrymen. The same causes which have built up the cities of Liverpool and Manchester in England, of Glasgow and Paisley in Scotland, and give employment to a million and more of persons in those countries, are now in operation among us, and under the fostering protection of our free institutions, the security of property, an energetic spirit, and increasing skill and improvements, are destined to diffuse wealth and prosperity widely over our land. The following progress of a pound of cotton, extracted from the English Monthly Magazine, will not be uninteresting. "There was sent to London lately from Paisley, a small piece of *Muslin*, about *one pound weight*, the history of which is as follows. The wool came from the East Indies to London; from London it went to Lancashire, where it was manufactured into yarn; from Manchester it was sent to Paisley, where it was woven; it was sent to Ayrshire next, where it was tamboured; it was then conveyed to Dumbarton, where it was hand-sewed and again retured to Paisley, whence it was sent to Glasgow and finished, and then sent per coach to London. It may be reckoned about three years that it took to bring this article to market, from the time when it was packed in India, till a arrived complete in the merchant's warehouse in London: whither it must have been conveyed 5000 miles by sea, nearly 1000 by land, and have contributed to reward the labor of nearly 150 persons, whose services were necessary to the carriage and manufacture of this small quantity of cotton, and by which the value has been advanced more than 2000 per cent."

FACTS AND OBSERVATIONS.

The following is from an old number of the Memoirs of the Massachusetts Agricultural Society:

The attention necessary to be paid to raising and feeding silk worms, would form an agreeable and lucrative employment to those who are placed above manual services. There is no part of *America* wherein the silk worm cannot be supplied with proper feed: as mulberry trees will thrive with very little care, even in the coldest. We are informed that in 1789, no less than 5400 pounds of silk were raised in the cold and sandy territory of *Prussia*. Perhaps no country possesses greater advantages for this purpose than *America*; and should this manufacture ever be actively pursued, it will not be extravagant to expect silken stuffs as cheap as any cloth made in America.

To show with what ease and convenience the worm may be fed, the following directions are extracted from some sensible letters, written by Mr. Joseph Clarke, of Northampton, and communicated by the Hon. James Winthrop, Esq., of Cambridge. To these gentlemen, the Society return their thanks, and will be obliged by any further communications to improve the agriculture and manufactures of our country.

Extracts from Mr. Clarke's Letters.

About ten years ago, I set over an acre of land with small mulberry trees, ten feet apart; they flourished extremely well, and in three or four years they formed a perfect forest. From these I used to gather my leaves; but I soon found the trouble and expense was too great; for I was obliged in the latter part of feeding, to employ a great many people, or the worm must starve; having observed those trees which were accidentally broken down sprouted anew and luxuriantly the following year, determined me on another method. I had a small enclosure of very rich ground, about six rods square, which in the spring of the year 1793 I ploughed and manured well. Here I sowed my mulberry seeds in rows, like carrots or parsnips in a garden, at suitable distances from each other for weeding and hoeing between them. The seed came up well, and the plants were kept quite free from weeds that summer; in doing which, you must be very careful as the plants are exceeding tender; in this first weeding the fingers must be principally used. The next spring before they began to sprout, with a scythe, I cut down all the bushes within two inches of the ground, and carefully weed them. This method answered my most sanguine expectations; for by the middle of July, when the worms devour the most leaves, they had grown up three feet in height, and being cut with a sickle, furnished me with abundance of leaves, in a cheap, easy and expeditious manner. The same method has been pursued with these trees or bushes ever since; so that you see there is no necessity for sowing the seed annually. A field once sown, will, for aught I can see, last a thousand years, if it be well ta-

ken care of. My mulberry trees are more flourishing this year, and yielded more food for the worms than they ever did before. This I attribute chiefly to the manure I put on them the last spring; notwithstanding they were cut down last July, they are now (October) about three feet high. My worms were hatched out the 24th of June, and continued eating just four weeks. They have consumed upwards of three thousand pounds of leaves, and the trouble of gathering them has been but little, compared with the whole business. A man can reap 3 or 400 weight within an hour; the expense and trouble are therefore trifling. I perform about three quarters of the business myself. The quantity of silk produced is about ten pounds; as to the quality, I can in no way so well inform you as by sending a skein of sewing silk, which I pray you to accept.

The idea that water is injurious to silk worms, is totally unfounded. My worms this year have been chiefly fed on wet leaves, gathered early in the morning, and as they grow dry in the course of the day, were sprinkled with water.† I have used in one day three pails full, in sprinkling the leaves, for I think it invigorates the worm in sultry weather. Hot water for the purpose of killing the chrysalis that is within the cocoon, to prevent his making his way through, and spoiling the silk, is never used. Hot water is only used when the cocoons are wound off into skeins. To kill the chrysalis, the cocoons are put into an oven, about as warm as when a woman takes out her bread; or they are exposed one or two days to the fierce rays of the sun. The last method is best, as there is no danger of injuring the silk, as may be the case in the former way. Should the oven be a little too warm, spread your cocoons on a table in the sun for two days successively; if you suspect they are not effectually killed, let them be out another day. They must be carried in at night; they must not be wet; if you wish to know whether the chrysalis be dead, take one of the thickest of the cocoons and cut it open; if you cannot perceive any life, you may conclude they are sunned sufficiently; should you perceive any signs of life, sun them another day.

From the Key West Enquirer.

FLORIDA ARROW ROOT.

The day we trust is not far distant when prejudices in favor of the productions of foreign countries will cease to operate to the detriment of the agriculturists and manufacturers of our own. We are sufficiently friendly to the policy and principle of free trade, to allow every man to exercise the most perfect freedom in the purchase of whatever he may require, whether the necessaries or luxuries of life, at whatever price he may think proper, yet we cannot but lament the blindness or perverseness that lead any one to overlook an article of home manufacture supplied at comparatively a low price, for one of foreign production in no way superior and truly considered "a dear artirle." The arrow root which is the growth of South Florida, may be considered one of the home productions which are sacrificed to the undue preference for those imported. Equally white, equally pure with that of Jamaica, heretofore deemed the best, and by many thought to be the most nutritious of the two, there can be no reason for its not superseding the necessity of supplying market with any of the articles from abroad.

We have no price current at hand giving the value of the imported article in first hands, but we are well assured that it cannot be imported at less than from two or three times the price of that manufactured in this vicinity, which is from 6 to 8 cts. per lb. With an increase of demand, the aid of machinery would be required, and diminution in price might be anticipated; at present a similar mode of manufacture to that followed abroad is pursued in Florida, though it is probable that Florida manufacturers possess not all the facilities of their competitors.

We are not sufficiently versed in botany to pronounce upon the similarity of the Florida root to that of Jamaica or Bermuda, but there can be no doubt of their belonging to the same family of plants. The quantity manufactured is sufficient for the present demand, and doubtless will increase, as the root is indigenous, and but two or three planters being at present engaged in the manufacture, and that too, in connection with their other agricultural pursuits.

The low price at which the Florida arrow root is sold, allows of its being applied to other purposes than those to which, from its dearness, foreign arrow root was usually restricted. For instance, it is used here almost universally, in the place of starch, and no one can visit Key West without being positively satisfied of the fitness of the substitute. It is so extremely valuable in the composition of many nicities of the table (a fact which we have made known for the particular edification of our fair readers,) and particularly in an imitation *Best Mung*. It is used by the planters in some places as a bread stuff, and was so used by the aborigines, but do not ask it for so general a use as to have it supersede the use of either wheat or rye.

We shall rest satisfied if our notice secures for the manufacturers as great a demand as the goodness of their arrow root deserves.

RAILROAD ACCIDENT.

We learn that the train of cars which left this city yesterday morning for Frederick, on the Baltimore and Ohio Railroad, were upset about two miles this side the Monocacy, and about two hundred yards beyond the watering place. The accident occurred about noon, and is understood to have been the consequence of an unperceived defect in the road,—one of the rails being loose and out of place, the end of it struck the tender and turned the whole train of cars off the track, thus causing the overturn. Several passengers, as we regret to learn, were more or less injured by the accident, though it is believed none dangerously so. The lady of JAS. L. HAWKINS, Esq. of this city, and the conductor of the train of cars, were the two most severely injured. Mrs. H. we learn, received a wound in the head. The person in charge of the train cars was taken out from under one of them, and was supposed to be considerably injured, though not so as to affect life. The accident, it will be seen, was one of those against which no degree of care and foresight is at all times a sufficient safeguard. [Balt. Pat.

CONSUMPTION OF OPIUM IN CHINA.—"It is a curious circumstance," says the *Quarterly Review*, "that we grow the poppy in our Indian territories to poison the people of China, in return for a wholesome beverage which they prepare, almost exclusively for us." From the following statement made by Mr. Davis, late Chief Superintendent at Canton, it appears that the money laid out by the Chinese on their favorite drug far exceeds what they receive for their tea:—

Imports in 1833.

	Dollars.
Opium, ...	11,618,167
Other Imports, . .	11,858,077
	23,476,244

Exports in 1833.

	Dollars.
Tea, ...	9,133,749
Other Exports, . .	11,309,521
	20,443,270

The Chinese smuggle all this opium, and pay the difference between the price of it and that of the tea they export in silver.

RAILROAD NOTICE.

PURSUANT to the provisions of an act of the General Assembly of Maryland, entitled "An act to incorporate the Eastern Shore Railroad Company," and the several supplements thereto, books of subscription to the capital stock of the Eastern Shore Railroad Company will be opened on the SECOND MONDAY OF NOVEMBER next, at ten o'clock, A. M. and continue to be opened for the space of three days next thereafter, between the hours of ten o'clock, A. M. and two o'clock, P. M. at the county town in each of the counties hereinafter mentioned—That is to say:

At Elkton, for Cecil county, under the direction of James Sewall, Lambert D. Nowland, Henry Hollingsworth, James Groome and Dr. Amos A. Evans.

At Charleston, for Kent County, under the direction of William Mck. Osborne, George Vickers, James F. Brown, Hugh Wallace, and Barney D. Course.

At Centreville, for Queen Ann's county, under the direction of John Brown, Dr. Robert Goldsborough, Peregrine Wilmer, Thomas Emory and George Newman.

At Denton, for Caroline county, under the direction of Thomas Burchenal, Edward B. Hardcastle, Thomas S. Carter, Caleb P. Davis, and Philemon Skinner.

At Easton, for Talbet county, under the direction of Wm. Hughlett, Edward N. Hambleton, John Leeds Kerr, Lambert W. Spencer and William H. Tilghman.

At Cambridge, for Dorchester county, under the direction of Thomas H. Hicks, Dr. William Jackson, William J. Ford, Dr. Joseph Nichols and Samuel Sewall.

At Princess Anne, for Sommerset county under the direction of Arnold E. Jones Joseph S. Cottman, John Dennis, Edward Long and Littleton D. Teackle.

At Snow Hill, for Worcester county, under the direction of Dr. John P. R. Gillis, Dr. John S. Spence, Samuel R. Smith, John U. Dennis and Dr. John J. Martin.

By order,

THOMAS EMORY, President.

LITTLETON DENNIS TEACKLE, Secretary.

Denton, Md. Sept. 16, 1836. 45-2t.

NOTICE TO CONTRACTORS.

WILMINGTON AND RALEIGH RAILROAD

PROPOSALS will be received at the office of this Company in Wilmington (N. C.) until the 15th of November for the graduation and bridging of 50 miles of the above Railroad, commencing at the north-east branch of the Cape Fear river, ten miles from Wilmington.

Any information which may be desired, can be obtained of Mr. T. H. Williamson, who will at all times be found on the line, or from the subscriber at Wilmington.

Contractors unknown to the undersigned must accompany these proposals with recommendations.

WALTER GWYNN.

October 15, 1836. 42—3t

FRAME BRIDGES.

THE subscriber would respectfully inform the public, and particularly Railroad and Bridge Corporations that he will build Frame Bridges, or vend the right to others to build, on Col. Long's Patent, throughout the United States, with few exceptions. The following sub-Agents have been engaged by the undersigned who will also attend to this business, viz.

Horace Childs,	Henniker, N. H.
Alexander McArthur,	Mount Morris, N. Y.
John Mahan,	do do
Thomas H. Cushing,	Dover, N. H.
Ira Blake,	Wakefield, N. H.
Amos Whitemore, Esq.,	Hancock, N. H.
Samuel Herrick,	Springfield, Vermont.
Simeon Herrick,	do do
Capt. Isaac Damon,	Northampton, Mass.
Lyman Kingsly,	do do
Elijah Halbert,	Waterloo, N. Y.
Joseph Hebard,	Dunkirk, N. Y.
Col. Sherman Peck,	Hudson, Ohio.
Andrew E. Turnbull,	Lower Sandusky, Ohio.
William J. Turnbull,	do do
Sabried Dodge, Esq.,	(Civil Engineer,) Ohio.
Booz M. Atherton, Esq.	New-Philadelphia, Ohio.
Stephen Daniels,	Marietta, Ohio
John Rodgers,	Louisville, Kentucky.
John Tililson,	St. Francisville, Lous'a.
Capt. John Bottom,	Tonawanda, Penn
Nehemiah Osborn,	Rochester, N. Y.

Bridges on the above plan are to be seen at the following localities, viz. On the main road leading from Baltimore to Washington, two miles from the former place. Across the Metawamkeag river on the Military road, in Maine. On the National road in Illinois, at sundry points. On the Baltimore and Susquehanna Railroad at three points. On the Hudson and Patterson Railroad, in two places. On the Boston and Worcester Railroad, at several points. On the Boston and Providence Railroad, at sundry points. Across the Contocook river at Hancock, N H. Across the Connecticut river at Haverhill, N. H. Across the Contoocook river, at Henniker, N. H. Across the Souhegan river, at Milford, N. H. Across the Kennebec river, at Waterville, in the state of Maine.—Across the Genesse river, at Mount Morris, New-York, and several other bridges are now in progress.

The undersigned has removed to Rochester, Monroe county, New-York, where he will promptly attend to orders in this line of business to any practicableextent in the United States, Maryland excepted.

MOSES LONG.
General Agent of Col. S. H Long.
Rochester, May 22d, 1836. 19y-tf.

ALBANY EAGLE AIR FURNACE AND MACHINE SHOP.

WILLIAM V. MANY manufactures to order, IRON CASTINGS for Gearing Mills and Factories of every description.

ALSO—Steam Engines and Railroad Castings of every description.

The collection of Patterns for Machinery, is not equalled in the United States. 9—1y

WESTERN RAILROAD.

PROPOSALS will be received at the Office of the Western Railroad Corporation, in Worcester, untilthe 20th November, for the grading and masonry of the first division of the Road, extending from Worcester to East Brookfield, a distance of 19¾ miles.

Plans, profiles, etc., will be ready for examination after the 10th November. W. H. SWIFT,
Resident Engineer.
Worcerter, Mass. Oct. 19, 1836. 43—tnov20

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlaem Railroad now in operation. J25tf

AMES' CELEBRATED SHOVELS, SPADES, &c.

300 dozens Ames' superior back-strap Shovels
150 do do do plain do
150 do do do cast steel Shovels & Spades
150 do do Gold-mining Shovels
100 do do plated Spades
50 do do socket Shovels and Spades.

Together with Pick Axes, Churn Drills, and Crow Bars (steel pointed,) manufactured from Salisbury refined iron—for sale by the manufacturing agents,

WITHERELL, AMES & CO.
No. 2 Liberty street, New-York.
BACKUS, AMES & CO.
No. 8 State street, Albany

N. B—Also furnished to order, Shapes of every description, made from Salsbury refined Iron 4—ytf

THE NEW-JERSEY, HUDSON AND DELAWARE RAILROAD.

NOTICE is hereby given that under and by virtue of an act of the Legislature of the State of New-Jersey, entitled, "A further supplement to an act to incorporate the New-Jersey, Hudson and Delaware Railroad Company, passed the 8th day of March A. D., eighteen hundred and thirty-two," the books to receive subscriptions to the Capital Stock of said Company will be open at 10 o'clock, A. M., of each of the days following, viz:

On Tuesday, the 8th Nov. next, at Joseph Tilman's, Columbia, N. J.

Wednesday and Thursday, 9th and 10th Nov. next, at John J. Blair's, Gravelhill, N J.

Friday, 11th Nov., at George Crockett's Marksboro, N. J.

Saturday, 12th Nov., at Peter B. Shafer's, Stillwater, N. J.

Monday, 14th Nov., at John S. Warbasse's, Newton, N. J.

Tuesday and Wednesday, 15th and 16th Nov., Abm. Brav's, Augusta, N. J.

Thursday, 17th Nov., at Stephen Ward's, Hamburg, N. J.

Friday and Saturday, 18th and 19th Nov., at H. Vibbert's, Dechertown, N. J.

Tuesday and Wednesday, 13th and 14th Dec., at United States Hotel, Newburgh, New-York.

Thursday, 15th Dec., at No. 34 Wall-street, city of New-York.

And continue open at the last mentioned place until the whole stock shall have been subscribed for, or at the discretion of the Commissioners. But if the whole of the Stock shall be subscribed for at either of the above mentioned places, the books will be immediately closed.

The Capital Stock is $500,000 with liberty to increase to $800,000, divided into shares of $100 each.

The sum of $5 on each share is required to be paid on subscribing.

SAMUEL FOWLER,
JOHN BELL,
JOSEPH CHANDLER,
WILLIAM HYBERGER,
ENOS GOBLE,
DANIEL HAINES,
SAMUEL PRICE,
JOHN I. BLAIR,
JOSEPH E. EDSALL,
COMMISSIONERS

Dated Oct. 3rd, 1836 41—9t

PATENT RAILROAD, SHIP AND BOAT SPIKES.

☞ The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation, and now almost universal use in the United States, (as well as England, where the subscriber obtained a patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

*** All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.
Troy, N. Y., July, 1831.

*** Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. (1J23am) H. BURDEN.

NEW ARRANGEMENT.

ROPES FOR INCLINED PLANES OF RAILROADS.

WE the subscribers having formed a co-partnership under the style and firm of Durpee, Coleman & Co., for the manufacturing and selling of Ropes for inclined planes of railroads, and for other uses, offer to supply ropes for inclined planes, of any length required without splice, at short notice, the manufacturing of cordage, heretofore carried on by S. S. Durfee & Co., will be done by the new firm. All orders will be promptly attended to, and ropes will be shipped to any port in the United States.

8th month, 8th, 1836. Hudson, Columbia County, State of New-York.

E. S. TOWNSEND, GEORGE COLEMAN,
ROBT. C. FOLGER, SYDNEY S. DURFEE
33—tf.

RAILWAY IRON, LOCOMOTIVES, &c

THE subscribers offer the following articles for sale.

Railway Iron, flat bars, with countersunk holes and mitred joints,

						lbs.	
350 tons	2½	by	½,	15 ft in length, weighing		$4\frac{68}{100}$	per ft.
280	" 2	"	½,	"	"	$3\frac{50}{100}$	"
70	" 1½	"	½,	"	"	$2\frac{1}{4}$	"
80	" 1½	"	½,	"	"	$1\frac{25}{100}$	"
90	" 1	"	½,	"	"	½	"

with Spikes and Splicing Plates adapted thereto. To be sold free of duty to State governments or incorporated companies.

Orders for Pennsylvania Boiler Iron executed.

Rail Road Car and Locomotive Engine Tires, wrought and turned or unturned, ready to be fitted on the wheels, viz. 30, 33, 36, 42, 44, 54, and 60 inches diameter.

E. V. Patent Chain Cable Bolts for Railway Car axles, in lengths of 12 feet 6 inches, to 13 feet 2¼, 2¾ 3, 3¼, 3½, 3¾, and 3¾ inches diameter.

Chains for Inclined Planes, short and stay links, manufactured from the E. V. Cable Bolts, and proved at the greatest strain.

India Rubber Rope for Inclined Planes, made from New Zealand flax.

Also Patent Hemp Cordage for Inclined Planes, and Canal Towing Lines.

Patent Felt for placing between the iron chair and stone block of Edge Railways.

Every description of Railway Iron, as well as Locomotive Engines, imported at the shortest notice, by the agency of one of our partners, who resides in England for this purpose.

Mr. Solomon W. Roberts, a highly respectable American Engineer, resides in England for the purpose of inspecting all Locomotives, Machinery, Railway Iron &c. ordered through us

A. & G. RALSTON.
28—tf Philadelphia, No. 4, South Front st.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS
Also, Flange Tires, turned complete
18 ROGERS, KETCHUM & GROSVENOR

TO RAILROAD CONTRACTORS.

PROPOSALS will be received until the 8th day of December next, for the graduation and masonry of the first ten miles of the Gainsville and Narkeeta Railroad. A profile of the route, with plans and specifications of the work, will be exhibited at Gainsville, for ten days previous to the time of letting and all other information given, on application to the subscriber or to the Assistant Engineer. Recommendations will be expected in all cases, of persons not known to the officers of the company or to the Engineer.

For the information of persons at a distance, it may be remarked, that this road commences at the town of Gainsville, on the Tombeckby river, and extends twenty-two miles south-west to Narkeeta in the State of Mississippi. The Tombeckby is navigable for Steamboats the greater portion of the year and having a direct communicationwith Mobile and New-Orleans, will afford facilities for procuring the supplies necessary for the hands employed on the work, or for their ready conveyance hither, if procured from a distance. The country through which the road is located, being perfectly healthy, and the mildness of the climate admitting of operations throughout the winter season renders the contract peculiarly desirable to those wanting winter employment. To an enterprizing and energetic contractor the construction of this road offers the prospect of a profitable job.

D. H. BINGHAM, C. E.
Gainsville, Ala. Sept. 21, 1836. 42—tDecl

ARCHIMEDES WORKS.

(100 North Moor street, N. Y.)
NEW-YORK, February 12th, 1836.

THE undersigned begs leave to inform the proprietors of Railroads that they are prepared to furnish all kinds of Machinery for Railroads, Locomotive Engines of any size, Car Wheels, such as are now in successful operation on the Camden and Amboy Railroad, none of which have failed—Castings of all kinds, Wheels, Axles, and Boxes, furnished at shortest notice.

H. R. DUNHAM & CO.
4—ytf